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END-RESULTS OF OPERATION FOR CORRECTION OF DROP-FOOT *

WILLIS C. CAMPBELL, M.D.

MEMPHIS, TENN.

Drop-foot is the inability to dorsiflex the ankle joint or foot, and is the result of any agent that impairs or abolishes the muscular power in the anterior group of leg muscles. The etiologic factors are: destructive changes in the muscles and tendons, toxic neuritis, as in lead poisoning, trauma to the external popliteal nerve, spastic paralysis and, most frequently, poliomyelitis, or infantile paralysis. Drop-foot may be simple, when only the anterior muscles of the leg are involved, or it may be associated with varus, valgus or flail-foot, if loss of muscle power is more extensive. As the anterior muscles of the leg are more frequently paralyzed than any other muscle group as a sequela of poliomyelitis, inability to dorsiflex the foot is a very common disability.

In June, 1923, I [1] described before the American Orthopedic Association a surgical operation for the correction of drop-foot in connection with other procedures in which drop-foot is associated with lateral deformities, as varus or valgus. At this time, the method had been employed in twenty-four cases, and only eleven months had elapsed since the first operation; in consequence, definite conclusions could not be reached, but from the evidence offered by roentgenologic and clinical manifestations there was no doubt that the purpose had been accomplished in a limited number of cases. Since the preliminary report, the technic, as originally defined, has been used in 119 cases, making a total of 135, and approximately three years has elapsed since the first operation. In consequence, sufficient evidence has been acquired to determine the real value of the new method.

All operative procedures, with the exception of the one under discussion, attempt to suspend the foot from the anterior aspect of the leg by silk cords, paralyzed tendons, transplanted fascia lata, etc., but the result of such methods is uncertain and often disappointing, as the constant force of gravity by the pendulous foot causes elongation of the improvised ligaments, with recurrence. It has become so universally recognized as to be an axiom that paralyzed tendons will not permit stress. In 1920, the American Orthopedic Association appointed a committee to investigate the various surgical procedures commonly employed in the treatment of paralytic feet. This committee, after a most painstaking, scientific and impartial investigation of the results, demonstrated in a majority of large orthopedic clinics of America, filed its comprehensive report before the association in June, 1921, in which it stated regarding drop-foot: "None of the operative methods considered can be confidently recommended as a standard procedure." After considerable experience and observation of results in other clinics, I reached the same conclusion; in consequence, I instituted a careful investigation to find a more dependable method. This culminated in devising the procedure described below. The entire object of this operation is to construct a stop joint, by transplanting or building up a mass of bone on the superior surface of the os calcis, thus forming a permanent bony process limiting plantar flexion by impingement on the posterior surface of the tibia. The technic is as follows:

The skin incision is made over the Achilles tendon, if this structure is contracted; otherwise to the outer or inner side, as convenient. It should extend from the superior aspect of the tuberosity of the os calcis upward for three or four inches in a straight line. If the Achilles tendon is contracted, a severance is made by the Z plastic method. A straight incision is next made in the midline to the posterior portion of the ankle joint, retracting inward the tendon of the flexor longus pollicis. With a heavy periosteal elevator, a pyramidal space is cleared, exposing the posterior surface of the tibia, ankle joint, subastragalar joint and superior surface of the os calcis. The foot is dorsiflexed, bringing into view the posterior extremity of the astragalus, which is removed for from one-half to three-fourths inch. A wedge-shaped cavity is excavated on the os calcis, below the posterior extremity of the astragalus and the posterior portion of the articular surface of the tibia. Bone is next transplanted from any portion of the skeleton. As it is usually necessary to enter the forefoot for the purpose of stabilization by arthrodesis, bone is often excised in the process, and can be utilized as transplants. Spongy bone is believed more naturally to adapt itself than dense bone from the tibia, though a tibial transplant was successfully employed in one case and has been recently advocated by Leo Meyer. Transplants from the femur, when the case is complicated by genu valgum, and from the ilium, in transferring the crest in hip flexion contractures, have proved efficient. If bone is excised from the forefoot, it is denuded of cartilage, and a large piece about one-half by one inch in diameter is selected and placed in the cavity prepared on the superior surface of the os calcis, about which small particles are arranged in a pyramid. The cartilage removed is placed in mosaic fashion to cover the posterior, inner and outer aspects of the pyramid, to prevent adhesion to surrounding structures; this step, however, is by no means essential, as

* Read before the Section on Orthopedic Surgery at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

1. Campbell, W. C.: Operation for Correction of Drop-Foot, J. Bone and Joint Surgery 5: 815-825 (Oct.) 1923.

the results are as good when bone is obtained elsewhere, free of cartilage. The soft parts are sutured snugly to retain the transplants in situ, the Achilles tendon is united, if severance is required, and the fascia and skin are closed. The foot is then held by a plaster cast at an angle of 90 degrees with the leg. Overcorrection is especially avoided, as it is preferable to secure

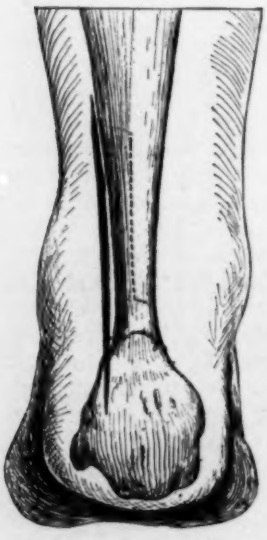

Fig. 1.—Skin incision for bone block operation.

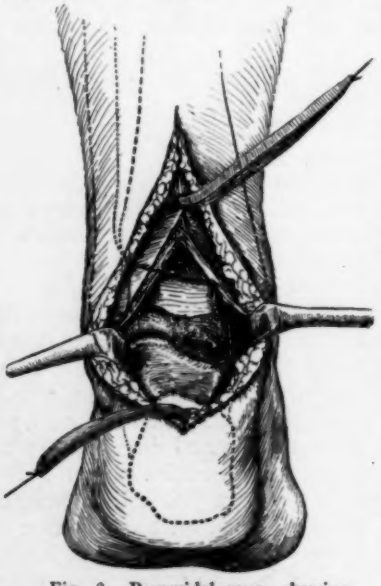

Fig. 2.—Pyramidal space showing superior surface of the os calcis and posterior aspect of ankle joint.

a slight degree of plantar flexion, in order to avoid flat sole or heel walking. At the end of eight weeks, the cast is removed and a roentgenogram made, which usually demonstrates proliferation. A sequence of roentgenograms exhibits a gradual organization of bone, until there is a solid mass continuous with and forming a part of the os calcis and often fusing the os calcis to the astragalus, stabilizing the subastragalar joint. Plantar flexion is thus prevented, as the olecranon process limits extension of the normal elbow. The technic may be modified, when the forefoot is stable, by turning forward the upper third of the os calcis, when, incidentally, it is possible to do a subastragalar arthrodesis, or even the horizontal section of Davis, with backward displacement of the foot by the posterior route. It is also possible to transfer particles of bone from the midtarsal region through the subastragalar joint to the superior surface of the os calcis, in performing a triple arthrodesis, but the block cannot be so accurately placed as when the posterior incision is employed.

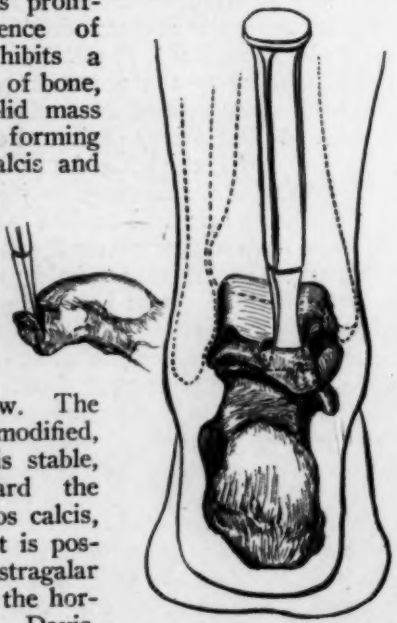

Fig. 3.—Large piece of bone selected to be placed on upper surface of os calcis.

Great care must be taken to place and to retain the bone block approximate to the ankle joint and the posterior surface of the tibia. Displacement is avoided by an apparatus that prevents plantar flexion. Consolidation is usually complete by the end of six months, when the apparatus may be discarded.

The scope of the procedure is apparently not fully appreciated, though it was mentioned in the first report. The operation is not alone employed in simple drop-foot, but whenever drop-foot is associated with other paralytic deformities. The indications are as follows:

1. Simple drop-foot, as a result of paralysis of the anterior group. The midtarsal joint is usually abnormally lax and requires stabilization, which necessitates the excision of bone that may be utilized as transplants.

2. Partial drop-foot, as evidenced by from 25 to 50 per cent. of normal power, but not sufficient to dorsiflex normally. If the midtarsal joint is stable, the bone block may be accomplished by turning forward a flap from the os calcis.

3. Rigid equinus. In this condition, the anterior group is partially, if not totally, paralyzed. Permanent limitation of plantar flexion prevents strain and increases endurance.

4. Equinovarus. The varus is corrected by tarsectomy, when sufficient bone is obtained for transference.

5. Equinovalgus. In this condition, with paralysis of the anterior muscles, a tarsal resection is often indicated, and from it sufficient bone for transference is available.

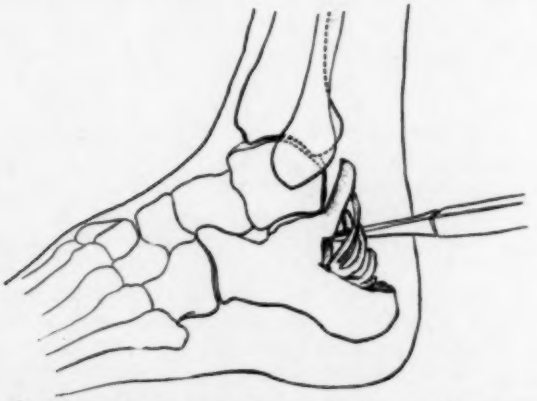

Fig. 4.—Diagram, side view, showing bone block in position approximate to and within ankle joint.

6. Flail-foot. As an addition to the Davis, Dunn, Ryerson or Hoke procedures, the transplant described above makes certain perfect stabilization. Backward displacement of the foot at the subastragalar joint will limit plantar flexion at times, but is not dependable.

7. As an adjunct of various combinations of tendon transference, especially the reattachment of the extensor longus digitorum to the tarsal region.

8. Spastic paralysis, or hemiplegia, with overactive heel cord. In such conditions, recurrence of deformities are notably frequent.

9. In children over 8 years of age. Prior to this time, stabilization operations are rarely indicated.

In fact, it is quite apparent that the procedure has been of value in practically all paralytic deformities of the feet with the exception of cavus, calcaneus and calcaneovalgus. The advantages of the operation are:

1. It has simplicity, as the transplants are usually available from associated procedures.

2. Apparatus may be discarded, as an internal brace is constructed.

3. Muscle power is conserved, by preventing the constant pull of the pendulous foot by gravity.

4. Constant prevention of overstretching may of itself induce a return of dormant muscle power.

5. As functional demands are decreased, feeble power may be cultivated.

6. Rocker motion of the ankle joint is conserved.

The operation has been employed in 135 cases, in 100 of which sufficient time has elapsed to determine permanent results; but no evidence, unless acquired by examination of my colleagues or myself and corroborated by the roentgenogram, is considered worthy of submission. I was so fortunate as to make a survey of sixty-two cases, in which from six months to three years had elapsed since operation. Of the sixty-two patients who presented themselves, there were fifty-eight in whom plantar flexion was satisfactorily restricted by a definite impingement of bone. In four cases, the disability relapsed and these are classed as failures. Of the sixty-two, forty-three were above the age of 14, with only one failure. Nineteen were children below the age of 14 and above the age of 7, with three failures. More time must elapse to determine the effect of growth on the relation of the new osseous process to the ankle joint, but up to the present there has been no evidence of change in position or dissolution, when the end-result was mechanically efficient and was so confirmed by the roentgenogram. However, there is abundant evidence of permanent blocking of joints by fractures occurring in early life.

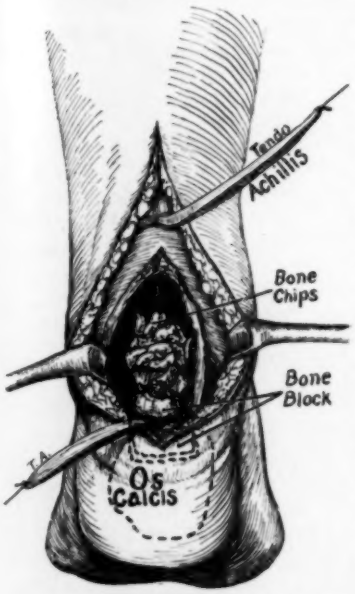

Fig. 5.—Modification, which has proved satisfactory in a number of cases, by simply turning up a large flap from the os calcis.

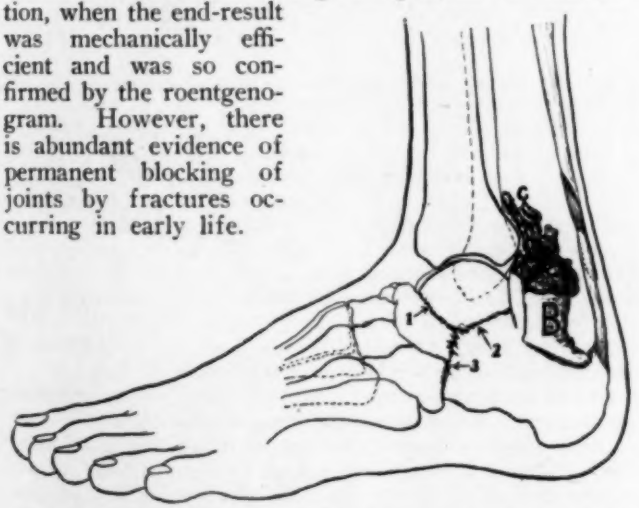

Fig. 6.—*B*, bone block; *C*, bone chips; 1, astragaloscaphoid arthrodesis; 2, subastragalar arthrodesis; 3, calcaneocuboid arthrodesis.

In all patients above the age of 14 in whom the result was demonstrated as satisfactory at the end of six months, there can be no question as to permanence. Of the four recurrences, there was absorption of the transplanted bone in one child, while three are attributed to errors in technic, which the roentgenogram clearly demonstrates was caused by failure to place or retain the multiple grafts approximate to the posterior aspect of the tibia and ankle joint.

Persistent pain on walking occurred in two cases; this was probably caused by the transplanting of an excessive amount of bone, but required no treatment, as there is a condensation with contracture as organization is instituted. Should pain persist, a portion of the new process could be removed. One patient complained of sudden pain with swelling; in his case the roentgenogram demonstrated a fracture of the tip of the new process, but recovery was uneventful, without treatment.

There is no intention to convey the impression that the operation is a panacea for all paralytic feet. Many factors, which must be duly considered, are involved in selecting suitable procedures for individual cases. However, the bone block operation to control drop-foot

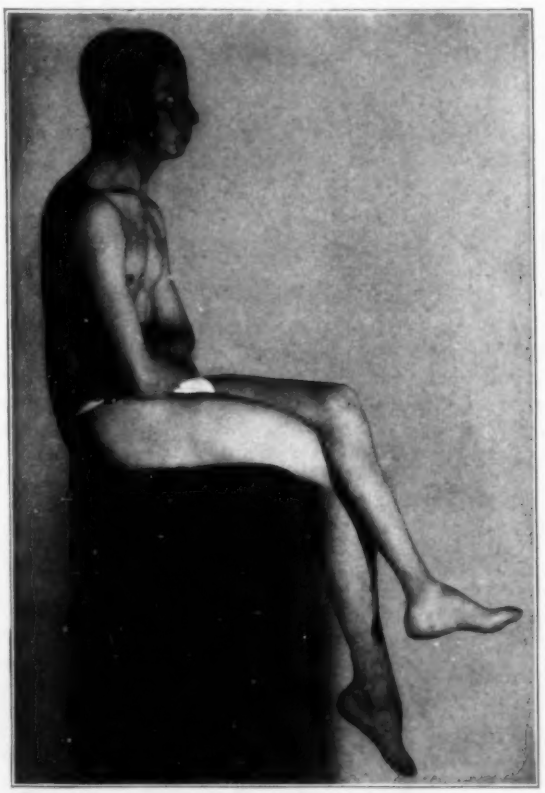

Fig. 7.—Satisfactory bone block one year after operation in boy, aged 16. The bone block should be compared with the left foot in extreme plantar flexion.

can be recommended with impunity as a dependable surgical procedure which has stood the test of time and from which satisfactory results may be expected in a high percentage of cases, if the original technic is closely followed.

869 Madison Avenue.

ABSTRACT OF DISCUSSION

DR. M. S. HENDERSON, Rochester, Minn.: I have followed Dr. Campbell's operation from the first. I had the opportunity of seeing a number of these cases and noting the end-results. We have all tried to correct drop-foot by silk ligaments, tenodesis, Gallie's operation, etc., and our percentage of failures has been entirely too great. We have all had the experience that Dr. Campbell mentioned of having the foot corrected by the various procedures, but seeing the patient a year or so later with the foot dropped down again. I think that Dr. Campbell's presentation is convincing. The roent-

genograms show his results, and, as stated, I have seen his cases and know that the operation does what it is intended to do; that is, it prevents the foot-drop. Dr. Campbell mentioned the procedure being used in spastic paralysis. That is interesting. I wonder how it will work out, and I should like to ask Dr. Campbell if he has had many cases of that kind. The operation must be done carefully. The technic must be correct. It is one of these operations which are not

Fig. 8.—Pyramid of transplanted bone posterior to ankle joint, three months after operation.

difficult, but still the technic must be strictly adhered to if we want to get results.

DR. M. N. SMITH-PETERSEN, Boston: Dr. Campbell states that the operation has stood the test of time. I do not believe four years is sufficient time to judge the operation by. No weight bearing joint in the body normally has a bony block limiting its range of motion. Any joint that has a bony block as the result of a fracture as a rule sooner or later becomes painful. Dr. Campbell did not make any reference

Fig. 9.—End-result eighteen months after the operation, with the bone block within the ankle joint and impinging on the posterior aspect of the tibia; fusion of graft of the subastragalar joint may also be noted.

to postoperative pain. If there is no pain during the early postoperative stages, there is apt to be pain in the course of years because of the prolific changes resulting from the constant irritation at the point of impingement.

DR. W. G. STERN, Cleveland: On behalf of the Foot Commission of the American Orthopedic Association, whose work Dr. Campbell mentioned in his paper, I wish to state that as far as I know the sentiments of the other members of the commission, they agree with the opinion expressed by Dr. Campbell: that no arthrodesis operation on the tibio-astragalar joint is indicated in any condition in which it can possibly be avoided. The original operation of this kind was proposed by Goldthwaite many years ago to cure drop-foot, and his idea was again rejuvenated by Dr. Steindler in an operation he speaks of as panarthrodesis. The commission did not have time to investigate enough of Dr. Steindler's cases to express any definite opinion about it, nor did it know of Dr. Campbell's operation, or see a sufficient number of cases of Hoke's operation that had lasted long enough from which to form any definite opinions. But in the opinion of the members of the Foot Commission, the arthrodesis operation on the tibio-astragalar joint should be avoided, because we all know the sad results in walking that will come with a perfectly stiff ankle joint. Whether or not Dr. Campbell's operation will stand the test of time or use, as Dr. Smith-Petersen infers it will not, I do not know. Nevertheless, it is the only type or kind of operation which in my opinion is going to be successful. Out of all the cases of drop-foot treated by Gallie's operation, Peckham's operation or ligament suspension that we learned of or saw, there was only the smallest proportion in which there was anything like a permanent success achieved.

Fig. 10.—Atypical result caused by transplanting an excessive amount of bone. The functional result is excellent.

DR. J. W. SEVER, Boston: A number of years ago when Dr. Campbell presented this procedure for the first time, I discussed it and I objected at that time seriously to it, as it did not seem to me that it was a satisfactory procedure or even a necessary procedure. I am perfectly willing, in view of the results he has reported now, to retract many of the things I said then, and it seems to me, with the exception that Dr. Smith-Petersen cited, that it offers a very satisfactory method for preventing or correcting a drop-foot. At the Children's Hospital in Boston we have been using the Hoke operation for these cases a good deal and have found it extraordinarily satisfactory. There is not much mutilation. There is adequate and excellent correction of the deformity, and, apparently, there is a permanent result without blocking of the motion in the ankle joint. I should like to ask Dr. Campbell whether in putting in this bone wedge he denudes the posterior surface of the tibia of its periosteum, and in the cases in which he operated sufficiently long ago is he able to tell whether there is disability in walking as a result of this bony block, with restriction of motion in the ankle joint, and whether by such insertion of a bone graft he can control either the valgus or the varus deformity.

DR. P. D. WILSON, Boston: I differ with Dr. Stern that there is no adequate operation for relief of drop-foot. We have all been doing the Hoke operation, and Dr. Sever failed to mention specifically the thing that we try to do in all such

cases, and that is to get posterior displacement of the foot, with the excision of the head and neck of the astragalus to a considerable degree, with the loosening up of the os scaphoid joint, with subsequent fusion, but first of all getting the foot displaced well backward so that the heel projects far back. We do exactly the same thing that we do with an astragalectomy; we change the leverage, the long lever in front; we shorten that up and lengthen the posterior lever,

Fig. 11.—Bone block accomplished by turning forward upper third of os calcis in boy, aged 6, who had previously had midtarsal fusion.

and of course that does stabilize the foot not only in the lateral direction but also in the anteroposterior direction.

DR. ALBERTUS COTTON, Baltimore: Has Dr. Campbell had any experience with this operation in adults? I should think the point brought out by Dr. Smith-Petersen is one worthy of attention. I should think there would be danger of later development of hypertrophic arthritis in this particular operation, especially in adults. We know how frequently this condition develops after joint injury in adults.

DR. REX L. DIVELEY, Kansas City, Mo.: As an associate of Dr. Frank Dickson, I should like to report a series of twenty-five cases in which the operation just described by Dr. Campbell has been performed. These cases we have studied over a period ranging from six months to two years. Dr. Campbell's operation has proved very successful. When we first started to use this procedure, we turned down a shelf from the posterior aspect of the tibia; but later we found it was much easier and just as effective to turn a shelf up from the superior aspect of the os calcis, turning this wedge of bone up on the lower end of the posterior aspect of the tibia, and holding it in place by suturing the soft part tightly over this wedge of bone. We have collected a series of roentgenograms of these cases and find that the shelf that was turned up from the os calcis hypertrophies and forms a stoplock which does not let the foot drop. We have found it very important in cases of varus or of valgus first to arthrodese the subastragaloid joint, either by a simple subastragaloid arthrodesis or a Hoke operation, generally combining this with a mediotarsal arthrodesis.

DR. W. C. CAMPBELL, Memphis: In answer to Dr. Henderson, the procedure has been employed successfully in spastic paralysis, but always associated with other measures, such as tenoplasty or Stoeffel's resection for that particular condition. Dr. Smith-Petersen speaks of there being no analysis in nature to the bone block secured as a result of the operation under discussion. In paralysis and many other disabilities a restoration to normal is impossible, and surgery is frequently employed to make as good a substitute as possible—for instance, there is no analogy in nature to that produced by his operation for sacro-iliac arthrodesis. I regard three years as sufficient time to determine the result in all above 14 years of age. In young children, as mentioned, the element of growth must be considered in any operation on bone; but there are no epiphyses involved and the results have been satisfactory, as described above. The value of the procedure has been proved to my colleagues and to me. Of course, years must elapse before any new method becomes an accepted standard procedure. As stated, pain was present in only two adults for a few months but did not persist; however, I have observed continuous pain following astragalectomy and other radical operations, which I am sure has been the experience of others. In answer to Dr. Cotton: There have been no arithritic changes following the bone block operation, nor has there been a tendency to proliferate. As a rule, the multiple grafts contract in fusing, forming a solid mass continuous with and a part of the os calcis. The posterior surface of the tibia is not denuded, as the object of the operation is to limit and conserve ankle motion, not to destroy. In answer to Dr. Sever: Valgus and varus are irrelevant to the subject, and are of interest only when associated with "drop-foot," other well known measures for these conditions being employed. The object of the Davis, Hoke, Dunn and Ryerson operations was first advanced by Davis; namely, a triple arthrodesis with backward displacement of the foot for the purpose of stabilization and the correction of lateral deformities. These measures rarely control anteroposterior motion.

TOTAL AND SUBTOTAL RESTORATION OF THE NOSE*

VILRAY P. BLAIR, M.D.
ST. LOUIS

To be acceptable, a surgically reconstructed nose must be covered with smooth skin, have a normal contour, have an epithelial lining, and provide an adequate airway. Though not always necessary, a rigid support of bone or cartilage will usually add to the quality of the result (Figs. 1 and 2). It is very desirable that the size and form of the new nose be in harmony with the particular face.

Fig. 3.—Lining, tip, columella and upper half of external nose restored by a forehead flap. After all scar had been excised and the alae dropped to the normal position, the flap was let in through a transverse incision across the bridge. The raw surface inside was thus lined and the free end of the flap was brought out below and turned into the defect in the tip, leaving enough redundancy in the turn to make the columella. Later the pedicle of the flap was cut across and turned over to make the covering of the upper half. *B*, forehead flap turned in; *C*, completed nose, which contains no supporting framework. This nose would also be better for a cartilaginous bridge. This girl later died of an intercurrent gastric hemorrhage.

Nasal reconstruction amounts to sculpturing with the live tissues for material, and this must be done in conformity with good surgical usage, combined with mechanical accuracy and some artistic feeling (Fig. 3).

* From the Surgical Department of the Washington University Medical School.

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

* Because of lack of space, this article is abbreviated in THE JOURNAL by the omission of a number of illustrations. The complete article appears in the Transactions of the Section and in the author's reprints.

Phidias seems to have been unique among sculptors in his ability to make a free hand carving of his ideal without previously working it out in some plastic material, and there are probably few surgeons of sufficient skill to emulate Phidias' example. Even a tailor will make a pattern before cutting into his cloth. Before any flaps are transplanted, all binding scars should, as far as possible, be removed, and this must be provided for in cutting the patterns (Fig. 5). Having assurance of the patient's physical fitness and of a free air passage (Fig. 4) the first step in reconstructing a nose or any other molded feature is to make an accurate plaster reproduction of the face and then build up the desired feature in clay (Fig. 5); from this, patterns can be made in tinfoil and lead

Fig. 5.—*A*, a man who has lost the lower half of the nose, adjacent part of the cheeks, and almost all of the upper lip except the mucosa. *B*, the lip built up in clay from which a pattern was cut of a flap to be made from the right side of the forehead, base at the temple; this restored the lip and cheeks. *C*, nose built in clay on the clay lip. From the former, a pattern was cut for a flap from the left side of the forehead, pedicle over inner end of left brow, to make the lining, covering and columella of the nose. By having the whole plan worked out in this way, the time of hospitalization is materially shortened and the number of operations is reduced.

The next step is to locate available material for the repair. Cartilage is commonly the most available and docile supporting material. Cartilage or bone is most often used in the form of an insert in the dorsum (Figs. 6, 28 and 29). Cartilage can be incorporated into the lining or covering flap before transferring it, but this is not the best plan (Figs. 7 and 8). If bone is used, it must have contact with bone; otherwise it will be absorbed. In some instances an osteoplastic flap is very useful (Figs. 9, 10 and 11). It is neither practicable nor necessary to reproduce the septum, but a good columella is a necessity (Fig. 12). In certain cases, the depressed or misplaced framework of the nose can be chiseled from its unnatural attachment and held in the desired position by a dental splint until union has occurred (Fig. 11).

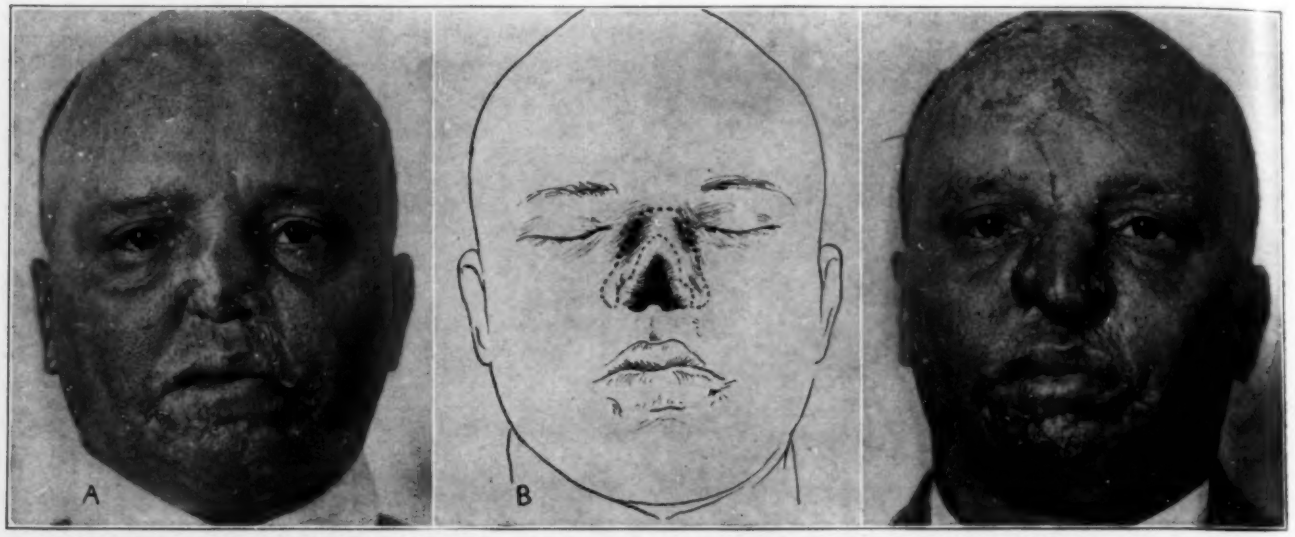

Fig. 4.—Loss of lining and much of covering; the remaining part had healed over leaving no external opening. The first step was to make an airway by turning in the skin to line the anterior part of the nasal tube (*B*). At the same operation a flap was raised from the forehead that provided for covering, lining and columella, and it was at once sutured back in place. (Delayed transfer of the flap was practiced in all these cases.) To hurry on the work, the step of making a preliminary deep incision around the attachment of the new nose was omitted, and we subsequently had considerable trouble with the lateral spreading of the foundation, which partly accounts for the asymmetry of the alae shown in *C*.

A pedicle flap from the arm (Figs. 15, 16 and 17), neck or forehead is commonly used for nasal covering. The ideal source is the forehead when sufficiently broad; it molds well and closely resembles the normal nose skin, but its use leaves a permanent blemish that cannot be entirely hidden by the most perfect skin graft (Fig. 12). In the presence of an extensive defect, baldness is sometimes a blessing (Figs. 18 and 19). Our observation of depilation by irradiation is that it is uncertain of result (Figs. 15, 16 and 17). In women, a transverse flap from the upper part of the neck leaves comparatively little ultimate marring and

Fig. 8 (same patient as in Figure 7).—The central flap included the full thickness to the periosteum, and between the muscle and skin a piece of the ninth rib cartilage was implanted at the time the flaps were first raised. Later the center flap was dropped down, raw surface out, to form the lining, and the lateral flap was rotated so that it had skin surface out to make the covering of the new nose.

may give grateful relief from a double chin, but the amount of material is limited (Fig. 20). A flap from the inner surface of the arm is of good surface texture but poor color, and may contain coarse fat lobules that prevent satisfactory contouring; the circulation of this flap

Fig. 11 (same patient as Figure 9).—To save the patient's limited time, flaps were made containing the full thickness of the nasal wall, skin, bone and cartilage, and mucosa, and these were readjusted in a way that brought the ridge to the midline and lengthened the nose. The septum was resected at the same operation. The long upper flap was held in place by a wire suture fastened to the upper left first molar. Patient returned home twenty-one days after operation.

is not always good (Fig. 21). A jump flap might be used. Except for small defects, the obtaining of flaps from the cheeks is usually not good practice (Figs. 22, 23 and 24).

The lining in some cases can be procured from the dorsum of the remaining part of the original nose (Figs. 3, 15, 16, 17 and 21), but in others will have to be provided from the same source as the covering. We have used a plan for restoring the whole nose by one flap which will furnish covering, lining, columella and alae, and in the folding, the general form of the nose will be reproduced.[1] The columella is frequently obtained from the lip. Except in a few instances, lining the new nose with free Thiersch or full thickness skin grafts has not been as satisfactory in our hands as has the use of a flap. In partial reconstruction, carefully made suture lines on the external surface of the nose, in time, usually become almost or quite invisible (Figs. 25 and 26). When destruction has

Fig. 12 (same patient as in Figure 3).—Columella made from an intermediate part of the forehead flap that lined the nose and made the tip. No attempt made to reproduce the septum. The hair is worn low on the forehead to hide a not very good full thickness skin graft.

been extensive, it may be necessary to build up the cheeks and lip before beginning on the nose itself, and this may make great inroads on the supply of desirable material (Figs. 27, 28 and 29). In planning the new nose, its final blood supply, after cutting the pedicle of the flap, must be considered. In some cases the covering flap may extend out on the cheek to insure adequate circulation. Wherever possible, ample provision should be made for shrinkage, failure of union with resuture, and adjustment of flaps; but, on the other hand, the more accurately the flaps are cut and sutured at the first operation, the fewer secondary adjustments will be required. This is a matter that furnishes opportunity to exercise nice judgment based on previous observations and catastrophes. A preoperative estimate of the patient's psychology is tremendously important. Some will be satisfied with any ordinary result, or less, while there are a few whose mental depressions will not be even partially relieved by the best obtainable result. Suicide or a life given over to useless self-pity has been the occasional sequence of really good nasal reconstructions (Figs. 30, 31 and 32).

Fig. 17 (same patient as in Figure 15).—Repair was made by turning down the skin of the alae and the lower half of the dorsum to form lining, and covering this raw surface with a flap from the arm. The covering flap was conformed with sutures to reproduce the natural curves of the alae and tip. There was quite a bit of hair on the arm flap, the destruction of which required sufficient radium irradiation to cause a severe surface blistering. Such a reaction must for a time cause some apprehension as to the effect on the flap itself. *A*, loosened and turned down for lining.

The conclusions from army and civilian observations are that few people are content to wear permanently an artificial feature, no matter how good (Figs. 33 and 34).

The more carefully and accurately a plan is worked out before actual surgical work is begun, and the more closely good surgical principles are adhered to, the better will be the result, the shorter will be the time required, and the fewer will be the necessary operations.

Metropolitan Building.

1. This plan was presented, with the writer's consent, by Dr. Robert Ivy before the Section on Stomatology of the American Medical Association in June, 1924 (Ivy, R. H.: Repair of Acquired Defects of the Face, J. A. M. A. **84**: 181 [Jan. 17] 1925).

ABSTRACT OF DISCUSSION

DR. GEORGE M. DORRANCE, Philadelphia: Dr. Blair is to be congratulated on his excellent results. There are certain facts on which we differ; one is taking the flap from the arm or chest. One must be very careful not to make these persons conspicuous. If one takes a flap from an arm or chest, it usually has a blanched white color, which is very different from the face. I have a patient under my care at present who was operated on fourteen years ago by a surgeon who replaced

a cheek and nasal bone defect with a flap from the chest. Her appearance now is quite grotesque, on account of the white color of the flap. Flaps from a chest and arm have a tendency to take on fat in most cases.

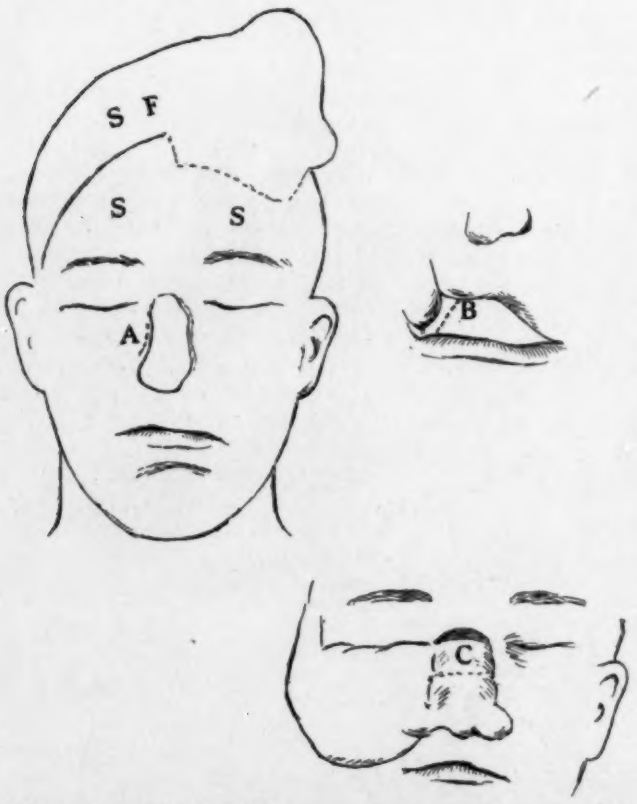

Fig. 19 (same patient as Figure 18).—Repair was made from a large flap cut from the bald vertex scalp with a left temporal base. This was so planned as to furnish lining, covering and columella, and had a prolongation out on the right cheek to insure a blood supply after the pedicle was cut. The lip had been partially restored by cheek flaps, but was later supplemented by a piece taken from the pedicle of this vertex flap. Before any of this was done, the cheeks were "stepped" forward to furnish a foundation for the new nose (Figs. 28 and 29). *S, S,* scar; *S F,* scalp flap; *A,* cut and sutured for fixation; *B,* brought forward and sutured to push lip forward; *C,* turned in for lining.

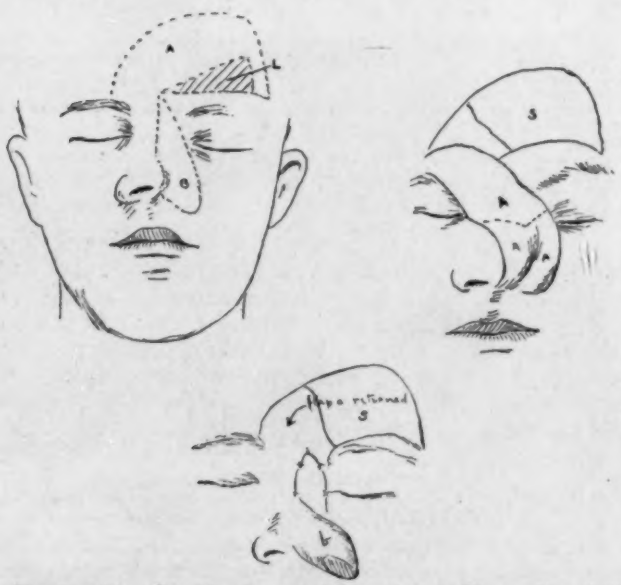

Fig. 24.—Plan of making flaps used for patient in Figures 22 and 23: *b,* lining of nostril; *S,* skin graft.

DR. GEORGE C. SCHAEFFER, Columbus, Ohio: I wish to emphasize three points. The first is the necessity of a good lining for the flap. A forehead flap will contract, unless there is a good lining. It can be lined by scar tissue or by a layer of epithelium or this modeling compound, placed under the skin covered by the Thiersch graft. Cases lined in this way are very dry, and patients complain of considerable dryness of the nose. In several recent cases, I have tried the transplantation of small strips of buccal mucosa from the mouth, putting these on the flap before putting the flap into shape. My experience has not been enough to warrant me in saying what the results are going to be, but I believe the method has a future. The second point is the necessity of a good appliance to hold the tissues in shape while healing is taking place. It is much easier to build a nose over an appliance and hold the nose in good shape than to put in an appliance to hold the nose in shape after it has become distorted. The third point is the advisability of using cartilage for a framework rather than other tissues. Recently it has come to my notice that some men are using ivory, shaping it so as to make a bridge for the nose. I speak of this practice merely to condemn it, because I think ivory is nothing more or less than a foreign body, which will later give trouble. As to the transplanting of the cartilage before the transplanting of the flap, I understand that Dr. Blair favors the method of transplanting the cartilage after the flap is in place. It is the method of choice, but so far my experience has been that transplanting cartilage under the flap is very satisfactory.

DR. ROBERT H. IVY, Philadelphia: Dr. Blair has demonstrated that it is possible to reconstruct a presentable, prominent and functioning external nose from a single forehead flap, and my

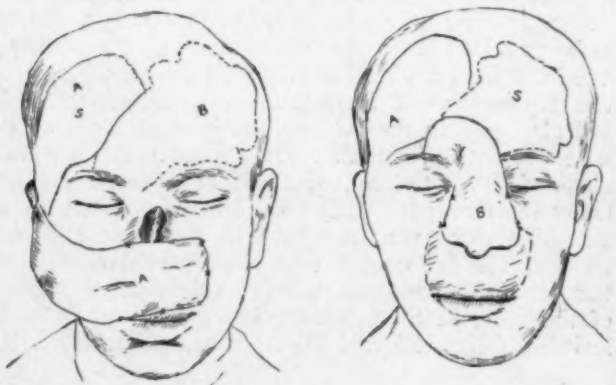

Fig. 29 (same patient as in Figure 28).—The first step was to restore the lip with a flap from the right side of the forehead. The nose flap, furnishing lining, covering and columella, came from the left side (*A* and *B*); *S,* skin graft.

own experience tends to confirm his findings in every respect. To obtain good results, the flap must be cut from a pattern previously prepared from a wax or clay model of the nose, built on a plaster cast of the face. The folding of the distal end of the forehead skin flap in the manner advocated by Dr. Blair is sufficient to provide lining for the lower part of the nose and to make the columella. By this means alone, sufficient prominence and rigidity of the tip of the nose can usually be obtained, without the use of cartilage or other supporting tissue in this region. Costal cartilage implantation is occasionally of advantage, to give greater prominence and stability to the upper part of the nose where the nasal bones are absent or depressed. But even then the forehead flap alone usually gives sufficient prominence. When costal cartilage is used, it can be implanted, first, under the forehead skin before bringing down the flap; secondly, under the remaining nasal skin, later bringing down the flap over it, and thirdly, under the forehead flap after it has been brought down. I believe with Dr. Blair that one of the last two plans is far preferable to the first, because it is much more difficult accurately to shape and place the cartilage beneath the skin of the forehead before bringing the flap down than it is to insert the cartilage at the beginning in its final position. I have found that the defect on the forehad can be best covered by a full thickness skin graft from the abdomen and supported by a sea sponge dressing under pressure.

DR. W. W. CARTER, New York: I began transplanting bone about fifteen years ago. I believe the clinical results now enable me to speak with some certainty as to what the final results are in this work. Bone and cartilage have distinctive uses. I use bone where I need strength and growth in transplanted tissues, I use cartilage chiefly as a filler, and I use combined bone and cartilage for the purpose of reproducing a natural nose and preserving the resilience of the nasal tip. Bone not only lives but it grows, and its growth is regulated by the functional demands of the part. My clinical experience assures me that bone can be successfully transplanted in the young. I have had two or three patients brought to me in whom it was absolutely necessary to transplant the bone because the parents demanded it. The deformity in one child was preventing her from going to school, and it was necessary to do the operation. Some of these cases are of sufficiently long standing for me to note final results and express an opinion. In one case in particular, the patient was operated on at 10 years of age. Now, at 13½, this young girl has a perfectly developed nose. Apparently the nose has the growth and vigor normal for her age. Bone, when properly transplanted, is not absorbed, but when it is not properly transplanted it is absorbed. If infection occurs there is going to be some loss of bony tissue even though the infection is quickly eradicated. The loss may be molecular, giving the edge of the transplant a dendritic appearance under the roentgen ray. Bone is pretty nearly as resistant to infection as cartilage. It continues to grow, and the growth is regulated by the functional demands of the part. I have noted in several cases in which fracture of the transplant has occurred that the ends of the fragments reunited in a perfectly normal manner. In one case, two years after the operation the transplant was fractured; it was set and the fragments became reunited.

A B C

Fig. 34.—Man who had lost the nose, the whole upper lip, the contents of the orbit with the lids, and much of the cheek from recurrent carcinoma. The forehead was not available as a source of flaps. The upper lip was made and the orbit and cheek defect covered with a transverse flap from the neck (*B*). The nose is of painted vulcanite resting on a spur on a dental bridge and held by spectacles (*C*).

DR. V. P. BLAIR, St. Louis: Ivory is to be classed with other foreign substances. There is a great deal of talk at present about the use of ivory. It comes out of Germany, and I think its use will go the way of other attempts to implant foreign substance in the tissues. I have had the opportunity of seeing a number of roentgen-ray studies of Dr. Carter's bone transplants, and I agree with him. I have a few children scattered over the country on whom I have done the bone-cartilage transplants described, hoping they would grow. He greatly encourages me, because I have not seen them since.

Infant Mortality.—According to the U. S. Children's Bureau, New Zealand has just broken her own low world record for infant mortality; only forty infants for every 1,000 born now die in their first year of life. The record for the United States is seventy-two for every 1,000.—*Science Service.*

ADIPOSIS DOLOROSA (DERCUM'S DISEASE)

A CLINICOPATHOLOGIC STUDY *

N. W. WINKELMAN, M.D.
PHILADELPHIA
AND
JOHN L. ECKEL, M.D.
BUFFALO

In 1892, Dercum [1] first gave the name "adiposis dolorosa" to a new clinical entity present in three cases, two of which had come to necropsy. Since that time about 200 reports have been added to the literature. Of these we have been able to find only fifteen that have come to necropsy, and there has been such a great diversity of findings that any additional information gained from necropsy material should be reported. For this reason the following case is presented.

REPORT OF CASE

History.—E. B., a colored widow, aged 50, was admitted to the Philadelphia General Hospital, June 21, 1924, because of a cough, which had been present for one week. As this patient presented extreme obesity, this phase of her case was studied. There had been no cases of obesity in her family so far as she knew. She began to accumulate fat rather gradually in girlhood, but there had been no change in the last twenty years. The obesity was most marked about the thorax, abdomen, back, hips and upper arms. At no time were her hands, face or feet involved. For "years" her fat had been painful on pressure. She had been married, but her husband had died many years before of unknown cause. She was never pregnant. She was up and about the house until one week before admission to the hospital. At this time she developed a cough. There had been ulcers on the legs.

Examination.—The patient was huge, weighing 460 pounds (208 kg.). The abdomen was very large, and the fat hung down to the knees when she stood upright. About both legs there were numerous ulcers, which were discharging freely and had an offensive odor. She had bullae on the thumbs. The arms, thorax, back and hips were very large. The upper arm measured 23 inches (58 cm.) in circumference, the wrists 8 inches (20 cm.); thighs, 34 inches (86 cm.); ankles, 12 inches (30 cm.), and the abdomen 72 inches (182 cm.). The breasts were large and pendulous. There were large rolls of fat about the back, thighs and abdomen, with deep creases and ulcers between the folds. The face, hands and feet were free from excessive fat. The fat was nodular and painful on pressure. There was slight dyspnea. She fatigued very easily, both mentally and physically. Her temperature during her few days in the hospital ranged from 98 to 102 F.; the pulse rate ranged from 80 to 108 per minute, and respirations varied from 20 to 30 per minute.

The heart was normal in size, and the sounds were of fair quality; there were no murmurs; the vessels were moderately sclerotic.

* From the neurologic laboratory and wards of the Philadelphia General Hospital.
* Read before the Section on Nervous and Mental Diseases at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

1. Dercum, F. X.: Three Cases of a Hitherto Unclassified Affection Resulting in Its Grosser Aspects, Obesity, but Associated with Special Nervous Symptoms, Am. J. M. Sc. **104**: 521, 1892.

The ulcers on the legs varied in size, depth and width. About the largest there were elevations, except in the upper portion of the thighs, where some were very red and were discharging freely. There was a papulovesicular eruption of acute appearance on the upper thighs. No visual disturbances could be made out, and there was no history of convulsions or of hemorrhage. Through some error, no laboratory work was done before her sudden death, which occurred on the fourth day after admission.

Necropsy (Dr. Case).—The body was that of an extremely obese adult negress (Fig. 1). The subcutaneous fat in the anterior abdominal wall measured 16 cm. in thickness. The mesentery and omentum contained a relatively small amount of fat. The heart was uniformly enlarged (490 gm.), with

Fig. 1.—Postmortem appearance of patient.

but slight increase of fat at the base. The myocardium was firm, red and of good texture, without fatty infiltration; the valves were competent. The left suprarenal measured 7.7 by 3.8 by 2.4 cm. The increase in size was due to an adenomatous growth of cortical tissue forming a large circumscribed, flattened, yellowish mass, occupying most of the organ. The right suprarenal was within normal limits as to size and structure. The kidneys were large and firm; the capsules stripped easily, and the structure within was normal. The uterus was firm and contained several polyps, some of which were necrotic. The ovaries were small and atrophic. The pancreas was firm and of a light straw color, with little or no fatty infiltration. The liver weighed 2,860 gm. It was firm and brownish red. There was no gross evidence of fatty change, a point of interest in view of the extreme obesity. The thyroid was not enlarged; it was firm and dark red. The cut surface was dark red and had a translucent appearance. The aorta showed moderate sclerosis. The sella turcica was enlarged in all directions; it measured 2.2 cm. laterally by 2 cm. anteroposteriorly by 1.4 cm. in depth. The pituitary body was distinctly enlarged, measuring 2.1 by 1.8 by 1 cm. The infundibulum and tuber cinereum were grossly normal. Lying on the surface of the sella was a dark red, soft, hematoma-like mass. On sagittal section this extended one-half the depth of the organ, and then became yellowish and slightly laminated. On the right this was replaced by a cavity which was small and with an irregular outline.

Microscopically (Dr. E. B. Krumbhaar), the pituitary (Figs. 2 and 3) was made up chiefly of cellular tissue resembling the anterior lobe, and in the center was an open space with irregular walls of fibrous tissue (necrosis). At each end, tissue resembling posterior lobe was seen, but this contained more cells and congested vessels than normal. The normal relations of the various lobes could not be made out. The cellular structure varied in different parts; it was unusually congested throughout. In some places the alveoli resembled the normal anterior lobe. No accurate differentiation into acidophil, basophil or chief cells was possible. In other places the alveoli arrangement was lost, and the cells were packed together without arrangement and without connective tissue stroma. The cells contained round or oval vesicular nuclei, with a small amount of acid-staining protoplasm. In one place in the capsule was a small nodule that contained relatively undifferentiated cells packed close together.

Microscopic sections of other organs (Dr. Belk) showed as follows: There was slight fatty infiltration of the pancreas. The left suprarenal showed adenoma (Fig. 4). The ovaries were atrophic and contained small cysts. The liver showed cloudy swelling, with moderate fatty infiltration and portal cirrhosis. There were benign papillomas in the uterus. The thyroid was normal.

Serial sections of the region of the tuber cinereum showed fairly recent petechial hemorrhages in the region of the walls of the third ventricle (Figs. 5 and 6). No other abnormality could be made out. The rest of the brain showed nothing of note.

LITERATURE

The following is a brief abstract of the cases coming to necropsy:

CASE 1 (Dercum,[1] 1892).—F., aged 64, married, the duration of whose obesity was fifteen years, weighed 300 pounds (136 kg.). The fat had accumulated gradually, and it was tender on pressure. She had occasional uterine hemorrhages. Postmortem examination revealed the thyroid small, indurated and infiltrated by calcareous matter in both lobes. The liver showed fatty infiltration. There was an ovarian cyst. No mention was made of the pituitary gland. No microscopic examination was done.

CASE 2 (Dercum,[1] 1892).—F., aged 60, began to accumulate fat in her eighteenth year. She had a history of epistaxis and hematomas. The fat was tender, and there was mental torpor. Necropsy showed the fat distributed in irregular masses. The thyroid was larger than normal, was firm and contained much calcareous matter. The liver showed fatty infiltration. The kidneys were shrunken. No mention was made of the pituitary gland. No microscopic examination was done, as the specimens were lost.

CASE 3 (Dercum,[2] 1900).—A widow, aged 51, whose condition began in the arms and spread to the trunk, had had painful swellings and neuritic pains. Necropsy showed an irregular, atrophied thyroid gland, with occasional areas of attempts at compensatory hypertrophy. There was extensive interstitial neuritis of the nerves in the fat masses. The tract of Goll showed slight degeneration.

CASE 4 (Burr,[3] 1901).—A very obese woman, aged 36, who weighed about 300 pounds (136 kg.), died of nephritis. The

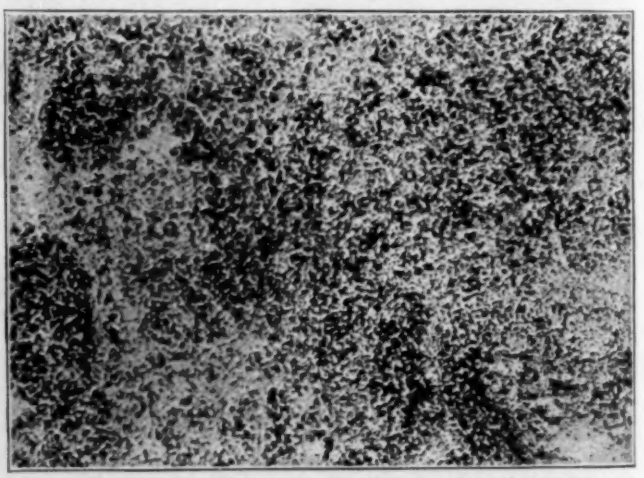

Fig. 2.—Marked adenomatous changes in pituitary as seen under low power.

fat was painful. Necropsy revealed a glioma of the pituitary gland, which was the size of a walnut. Marked internal hydrocephalus was present. The ovaries were small and hard. The peripheral nerves in the fat showed interstitial changes. The thyroid contained a concretion the size of a small chestnut, also colloid degeneration and atrophy with absence of secreting cells in many acini. The liver showed fatty degeneration.

2. Dercum, F. X.: Autopsy in a Case of Adiposis Dolorosa with Microscopical Examination, J. Nerv. & Ment. Dis. **27**: 419, 1900.
3. Burr, C. W.: A Case of Adiposis Dolorosa with Necropsy, J. Nerv. & Ment. Dis. **27**: 519, 1900.

CASE 5 (Dercum and McCarthy,[4] 1902).—A man, aged 39, whose obesity began at 17, had had convulsive seizures during his last five years. There were frequent attacks of epistaxis. Necropsy revealed adenocarcinoma of the pituitary body. There were fibroid hemolymphoid nodules in the subcutaneous fat. There was interstitial neuritis of the nerve filaments in the fat nodules. The spleen revealed interstitial hyperplasia. The testes were defective. The right suprarenal was hypertrophied.

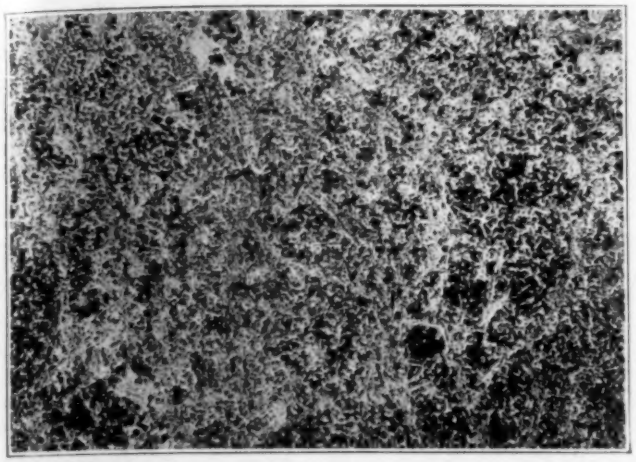

Fig. 3.—Marked adenomatous changes in pituitary as seen under low power.

CASE 6 (Ballet,[5] 1903).—Obesity was present for eight years in a woman, aged 68. She was very depressed and suicidal. Necropsy revealed diffuse sclerosis of the thyroid gland and interstitial neuritis of the nerve filaments in the fat nodules. There was fatty infiltration of the liver. No examination of the pituitary body was made. The cord and cortex were normal.

CASE 7 (Rome,[6] 1904).—A woman, aged 55, with obesity for ten years, had had no vasomotor nor sensory disturbance. Necropsy revealed no abnormality of the thyroid, pituitary body, or cord. The heart was dilated. There was interstitial nephritis. There were no microscopic lesions to explain the condition.

CASE 8 (Guillain and Alquier,[7] 1906).—F., aged 57, whose condition had existed ten years, had had mental symptoms and right hemiplegia. Necropsy revealed the pituitary body double the normal size, with marked increase of connective tissue in the anterior lobe and changes suggestive of alveolar carcinoma. The thyroid was hypertrophied with an increase of connective tissue stroma. The follicles were large and filled with colloid. No examination of the pancreas or the suprarenals was reported.

CASE 9 (Loening and Fuss,[8] 1906).—A woman, aged 66, who began to accumulate fat at the age of 12, weighed 185 pounds (84 kg.). The fat was tender. She died of erysipelas. Necropsy revealed a thyroid the size of a walnut, with increase of the connective tissue stroma. The ovaries were atrophic.

CASE 10 (Price,[9] Case 1, 1909).—A woman, aged 57, who lived but eleven days after admission, had no available history. A postmortem examination revealed marked increase of interstitial connective tissue of the thyroid gland with inflammatory changes. One lobe showed marked infiltration, while the other showed compensatory hypertrophy. There were some inflammatory changes in the pituitary body, with areas of round cell infiltration, suggestive of an alveolar carcinoma. There was interstitial neuritis in the fat. The ovaries were sclerotic.

CASE 11 (Price,[9] Case 2, 1909).—In this woman, aged 48, no history could be obtained. Her weight was 308 pounds (140 kg.). A postmortem examination revealed marked increase of connective tissue of the thyroid, and a dilatation of the acini with infoldings of the cuboidal epithelial lining. The pituitary body showed several areas of round cell infiltration.

CASE 12 (Marchand and Nauet,[10] 1911).—F., aged 58, the duration of whose obesity was nine years, proved at necropsy to have a thickened pia, with narrow cortex and increase of neuroglia. There was inflammation of the peripheral nerves in the fat. The thyroid was large, with increase in the connective tissue. The follicles were normal. In places there was typical adenomatous structure with much colloid in the follicles. No mention was made of the pituitary body or the pancreas. There was atrophy of the ovaries with disappearance of follicles.

CASE 13 (Falta,[11] 1913).—Necropsy done on a man, aged 56, in whom the duration of obesity was twenty years, revealed the thyroid as having a colloid struma, but everywhere abundant gland tissue of normal consistency was still found. There was perivascular infiltration in the fat tissue. No definite pathologic changes in the gland were present.

CASE 14 (Dammann,[12] 1913).—The condition of F., aged 61, had existed twenty-six years. At necropsy the thyroid was not enlarged, but the left lobe contained colloid areas with dilated follicles. The connective tissue was thick and gave the appearance of an adenomatous hypertrophy. The pituitary body showed slight infiltration about Rathke's pouch. The pancreas showed focal fat increase. The suprarenals had hyaline areas. The ovaries were atrophic and had no remaining follicles.

CASE 15 (Brüning and Walter,[13] 1919).—A boy, aged 10, in whom the condition had existed but nine months, had polydypsia, polyuria, glycemia and convulsions. There was amaurosis and augmented development of the secondary sex characteristics. Necropsy revealed an alveolar adenoma of the pituitary gland.

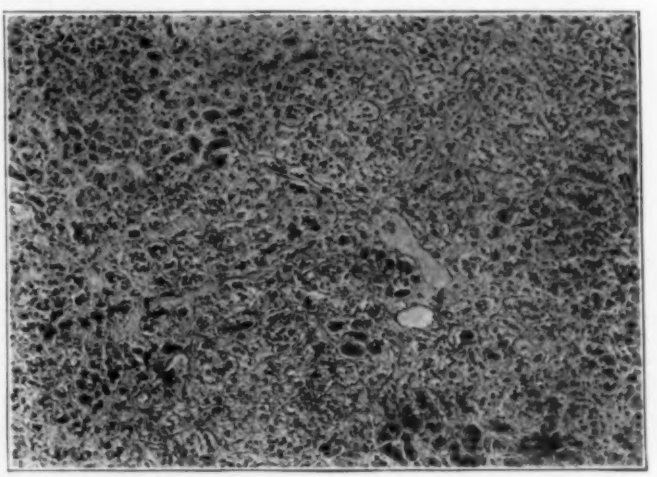

Fig. 4.—Adenomatous arrangement of suprarenal as seen under low power.

COMMENT

The case herein described fits in with the generally recognized syndrome of Dercum's disease, showing the

4. Dercum, F. X., and McCarthy, D. J.: Autopsy in a Case of Adiposis Dolorosa, Am. J. M. Sc. **124**: 994, 1902.
5. Ballet, G.: l'Adipeuse douloureuse, Presse méd. **10**: 285, 1903.
6. Rome, O.: Maladie de Dercum (adipose douloureuse), Lyon méd. **103**: 1005, 1904.
7. Guillain and Alquier: Etude anatome-pathologique d'un cas de maladie de Dercum, Arch. de méd. exper. et d'anat. path. **18**: 680, 1906.
8. Loening, K., and Fuss, S.: Schildrüsenveränderungen bei Adipositas dolorosa, Verhandl. d. Cong. f. inn. Med. **23**: 222, 1906.
9. Price, G. E.: Adiposis Dolorosa, a Clinical and Pathological Study with the Report of Two Cases with Necropsy, Am. J. M. Sc. **127**: 305, 1909.
10. Marchand and Nauet: Etude anatomo-pathologique d'un cas de maladie de Dercum chez une imbécille épileptique, Nouv. iconog. de la Saltpêtrière **24**: 144, 1911.
11. Falta, W.: Endocrine Diseases, translated and edited by M. K. Meyers, Ed. 2, Philadelphia, P. Blakiston's Son & Co., 1916, p. 575.
12. Dammann, K.: Zur Pathologie der Adipositas dolorosa (Dercumsche Krankheit), Frankfurter Ztschr. f. Path. **13**: 337, 1913.
13. Brüning, H., and Walter, F. K.: Zur frage der Adipositas dolorosa (Dercumshe Krankheit) in Kindersalter, Ztschr. f. Kinderh. **24**: 183, 1919.

following features: (1) obesity (exclusive of face, hands and feet), weight 460 pounds (208 kg.), with painful masses; (2) ulcers on the legs and bullae on the fingers, and (3) asthenia.

The pathologic findings were an adenoma of the anterior lobe of the pituitary body with enlargement of the sella turcica, an ademateous hyperplasia of the left suprarenal gland, atrophy of the ovaries, and many recent hemorrhages in the thalamus and subthalamic regions.

On reviewing the necropsy findings of the fifteen cases in the literature, one is impressed by the pluriglandular involvement in most of the cases. In only two cases were there no definite changes in the ductless glands (Rome and Falta). Of the eleven patients in whom the pituitary body was examined, eight showed definite alterations; the thyroid was abnormal in twelve cases; the sex glands were pathologic in nine; the suprarenal in three, and the pancreas in two.

Our own case showed pituitary, suprarenal and ovarian pathologic changes. It is of interest from a clinical standpoint to note that the condition is five times more prevalent in the female and that most cases develop after the age of 35.

In view of the recent work on the tuber cinereum (Bailey and Bremer,[14] Camus and Roussy[15]), serial section study of this region was done. Nothing was found that could throw light on the etiology of the disease. The occurrence of fairly recent hemorrhages in the vicinity of the tuber cinereum and in the pituitary body may be evidence of the hemorrhagic tendency so frequent in this disease.

Dercum originally attributed the condition to a dysthyroidia which caused a reduction of fat combustion and inflammatory changes of the nerves. Since then other theories have also been advanced; viz.,

Fig. 5.—Appearance under low power of fairly large hemorrhage seen in region of third ventricle.

that it is a chronic intoxication of endogenous origin. Others believe the pituitary body at fault, while still others are of the opinion that it is a pluriglandular affection. Strübing[16] and Thimm[17] theorized on a trophoneurosis.

14. Bailey, Percival; and Bremer, Fritz: Experimental Diabetes Insipidus, Arch. Int. Med. **28**: 773 (Dec.) 1921.
15. Camus, J., and Roussy, G.: Pituitary Syndromes, Rev. neurol. **38**: 622 (June) 1922.
16. Strübing: Ueber Adiposis dolorosa und das Oedème blanc und bleu, Arch. f. Dermat. u. Syph. **59**: 171, 1902.
17. Thimm: Adiposis dolorosa und schmerzhafte symptomatische Lipome, Montsh. f. prakt. Dermat. **36**: 281, 1903.

The relation of the other forms of obesity to Dercum's disease has been dwelt on by several, including Lyon[18] McCarthy and Karsner.[19]

Falta[11] believes that the changes in the ductless glands are accidental or coincidental. From a study of one case, no definite deductions can be made, but with three of the glands of internal secretion diseased, and knowing that there is an interrelationship between all the ductless glands, we feel that the pluriglandular hypothesis is best suited to explain the syndrome.

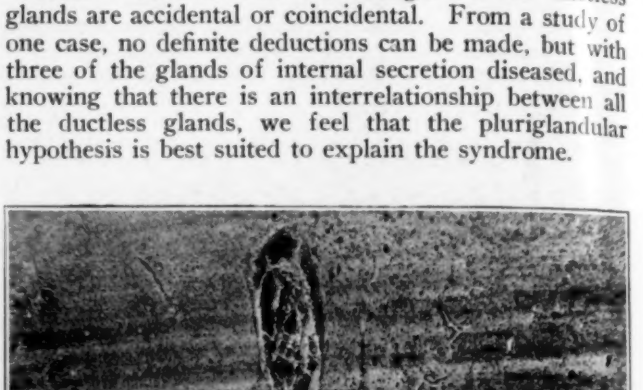

Fig. 6.—Appearance under low power of fairly large hemorrhage seen in region of third ventricle.

SUMMARY

1. The case of adiposis dolorosa that we report was quite typical clinically.

2. Pathologically, there was enlargement of the sella turcica with an adenomatous growth in the pituitary, recent petechial hemorrhages in the region of the third ventricle, and adenoma of the left suprarenal, and atrophic ovaries.

3. The theory of endocrine malfunction seems best suited to explain the symptoms in this case.

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ABSTRACT OF DISCUSSION

Dr. Walter Timme, New York: We have seen in our clinic at the Neurological Institute a few cases of Dercum's disease in the last six or seven years, none of which have, so far as we know, come to necropsy. Yet the cases that we see fall so definitely into a type of a well marked pleuriglandular syndrome that we have come to look on them as belonging to this group. Practically all our cases show on roentgen-ray examination a large thymus, and the history of the cases shows an original thymus or hypoplastic state dating from puberty, even antedating puberty. Because they are not only extremely fatigable and backward, not necessarily from a mental but from a biochemical point of view, the picture can hardly be mistaken. They show a small blood vessel system and a small cardiovascular system. The fundus of the eye shows very small vessels; the blood pressure is usually low. There is an enlargement of the spleen but hypoplasia of other organs. This is of extreme importance in diagnosis, especially the notably small suprarenal, thyroid and the pituitary glands. In the course of a probable compensatory process, which brings these cases after a while toward normality (even if they don't reach it), these

18. Lyon, I. P.: Adiposis and Lipomatosis, Arch. Int. Med. **6**: 28 (July) 1910.
19. McCarthy, D. J., and Karsner, H. T.: Adenocarcinoma of the Thyroid with Metastasis to the Cervical Glands and Pituitary: A Contribution to the Pathology of Abdominal Fat Formation, Am. J. M. Sc. **144**: 834, 1912.

hypoplastic structures tend to become hyperplastic or overactive, with occasional formation of adenomas. Several patients belonging to this group (not merely Dercum's disease) have been operated on for pituitary and thyroid adenomas. Many of them in the course of their progress give histories of hemorrhages, occasionally into the central nervous system, and show definite signs of such lesions. Occasionally, after lethal termination, hemorrhages are found in the suprarenals and in the ventricles of the brain, the arteries of the ventricles, particularly, being subject to such hemorrhagic insults. Those hemorrhages are due partly to a hypoplasia of the arterial walls, readily permitting such results. Occasionally these hemorrhages give no manifestations. It sometimes happens that the pituitary is involved and enlarges; these cases give pituitary disturbance later in life. Occasionally, it is the thyroid that gives symptoms as the cases progress, or the suprarenals may bring on disturbances. Hence, there is no unanimity as regards the pathology of a finished case, because of the fact that any one or all three of these organs are engaged in the compensatory process. In the case presented by Dr. Eckel, we have the hemorrhages, the adenomas, the pituitary involvement and the suprarenal involvement. But they all began from an original hypoplastic condition, the emergence from which is shown by the manifestations of the particular gland at fault.

Dr. Theodore Diller, Pittsburgh: In 1886 and 1887, I was a resident physician at Blockley Hospital, and at that time, serving under Dr. Dercum, I saw the first case that he described, which has become a classic in literature. I remember the patient distinctly, and I wish to pay a tribute to Dr. Dercum for his skill in describing this case. I remember well the weblike appearance that the patient presented when she held out her arms; it was a case with no name until Dercum came along. This disease is an illustration of many rare ones that occur in neurology; having seen one, a person could not fail to recognize another if he saw it. It so happens that in my experience of nearly forty years in neurology, I have seen only one other case and that was about twenty years ago. I see this woman from time to time. She has not such a marked case, but it seems about stationary. She is neurasthenic, has fatigability, and all the symptoms that Dr. Timme has been speaking about.

Dr. J. D. McCarthy, Philadelphia: No mention was made in the record of the pathology and description of this case of the underlying diagnostic factor in this group of cases. In the Dercum group of cases, as differentiated from the other pathologic fat conditions, one finds, if he studies the fat under microscopic slides, evidence of a peripheral neuritis of the nerve filaments, going into tumors in the fat tissues. The fatty masses are encapsulated and there is also a condition of increased vascularity. I was surprised to hear Dr. Timme say that he has seen so many of these cases, because in the Philadelphia General Hospital in the last thirty years there probably have not been more than three or four of these cases, with the tremendous amount of material that we have, that have come to necropsy. We have, however, a large number of conditions of pathologic fat, which we do not consider as adiposis dolorosa. Many of these cases look very much like the case that was shown here, with tremendous masses of fat in the abdomen; more particularly when the patients get to the point at which they are bedridden, there is what one might term an increase in vascularization, and the fat tissue of the abdomen becomes infiltrated and tender. But that is not what Dercum or what I would consider a case of adiposis dolorosa. A case of adiposis dolorosa would be one in which there was pain at times, tendency of the fat to swell in localized areas at times, and these areas extremely tender to touch during the periods of congestion, at other times ordinarily tender, and associated with the endocrine changes that Dr. Timme and that Dr. Winkelman have found in this case. I think that the case I reported, with Dr. Burr, was one of the first cases in this group in which an endocrine association was reported, and that antedated Froelich's association of the gonads with pituitary disturbance. In that paper, the association of the ovarian function with the pituitary function and with secondary thyroid condition was very definitely pointed out. This was the first suggestion of the sexual influence of the pituitary, and the relation of the pituitary to sex development. That, I think, was possibly the second or the third case reported, and I believe it was the second necropsy. In the first necropsy by Dr. Dercum, as I remember, the pituitary, the thyroid or endocrine systems were not studied, but in our first case we found definite lesions of the endocrine system; in the cases reported by Dr. Burr and myself, the lesions were just exactly like the lesions reported in this case, adenomas of the pituitary and sclerosis of the thyroid, associated with ovarian disease. I do not see definitely how one can link these cases up, without pathologic findings, with a thymus condition. I think these cases show manifestation of disturbed metabolism due, as Dr. Timme has pointed out, not only to lesion of the pituitary but to a pleuriglandular condition, in which the pituitary might have been the primary lesion, but in which these other glands became secondarily involved. Any other assumption must be pure theory.

Dr. J. L. Eckel, Buffalo: There is just one question I wish to answer in closing, and that is regarding the pathologic examination of the nodular fat. The necropsy physician did not remove any of the fat for our analysis, and we had no opportunity to get it.

URINARY CALCULI

CHEMICAL COMPOSITION AND STRUCTURE IN RELATION TO RADIOGRAPHY *

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HARTFORD, CONN.

Since the advent of radiology, urology has made a remarkable advance toward more accurate diagnosis. In the earliest days of radiology it was considered quite sufficient if the shadow of a stone could be demonstrated; but during the last few years, through accumulated experience, more perfect technic and the introduction of pyelography, the roentgen ray has become a necessary adjunct to the study of urologic conditions. It is an accepted fact that there is a certain percentage of urinary calculi that fail to cast shadows on a roentgen-ray plate. For years a positive roentgenogram has been of value, but we still encounter

Fig. 1.—Several calculi of same constituents: Density of shadow in stones within may be noted; neosilvol solution; calculi were positive to ordinary roentgen ray.

* Read before the Section on Urology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

cases in which a negative result does not always mean absence of urinary calculi. Too often, indeed, has it occurred, after the removal of urinary calculi which had previously been demonstrated by the roentgen ray, that the patient has had a ureteral colic before leaving

Fig. 2.—Two calculi in same kidney: Good density of shadow in larger stone as a result of a large amount of calcium; small calculus is uric acid with some calcium.

the hospital and very often has passed another stone. Recent medical literature is rich with contributions on the so-called "recurrent urinary calculi," many of which were undoubtedly present but not discovered at a previous operation.

Frequently, during the course of a urologic examination, the ureteral catheter meets an obstruction, and with negative roentgen-ray findings, ureteral stricture is considered proved by many, instead of merely suggested, and no further search is instituted for urinary calculi.

Finally, there are still those physicians in practice who rely on the roentgen ray entirely for the diagnosis of urinary calculi, notwithstanding the fact that there are few cities that do not have at least one physician who is trained in the use of the cystoscope, or if not, that such a physician is located within the radius of a very few miles.

Many investigators have written on the chemical composition of urinary calculi, and in nearly all the earlier works the authors considered uric acid and urates as the most important constituents of urinary stones. A review of the literature points out the fact that various authors differ as to the percentage of calculi containing these constituents. Thompson-Walker notes that out of 649 urinary calculi in the Hunterian Museum which were examined by Beneki, 74 per cent. contained uric acid or urates. Dickinson, during the examination of ninety-one renal stones, found uric acid or urates present in 70 per cent. Further examination showed that 63 per cent. of them contained calcium oxalate. On the other hand, Kuster found uric acid and urates to be present in only 3 per cent. of a series of 511 renal stones. In this same series phosphate was present in 31 per cent., while oxalate was found in 22 per cent.; xanthin was present in 3 per cent. of this series. Ultzman, in a series of 545 stones examined, found uric acid in 81 per cent., calcium oxalate in 5.6 per cent., and phosphate in 1.4 per cent. Bence-Jones asserts that 75 per cent. of all renal calculi are uric acid. Rosenbloom and Kahn report that in one series of twenty-six stones the majority were composed of calcium oxalate; and later, the same authors report a second series of twenty-six stones, all of which contained oxalates, 66 per cent. of them containing over 60 per cent. of oxalate. Moore has examined twenty-one stones from kidney and ureter and found that 70 per cent. of them contained oxalate. Morris, in a series of seventy-seven stones, gives the following figures: calcium oxalate, 44.15 per cent.; uric acid, 22.07 per cent.; phosphate, 16 per cent. White of London, in a recent article, records that, in a series of twenty-four renal stones investigated, 75 per cent. contained calcium oxalate and 58 per cent. calcium phosphate. In eleven of these stones (45 per cent.) some proportion of uric acid was detected, but in all of them calcium oxalate or calcium phosphate was also present.

In the preceding figures there is a large variation in the results obtained by the different investigators. This can be accounted for because: 1. Some of the authors included in their series several stones removed from the same bladder and having the same composition. 2. In the investigations in several instances, only the incidence of one or more constituents was sought, the other elements in the stone being disregarded. However, it is noted that the later investigators found more oxalates than their predecessors.

In presenting this article it is not my intention to carry on further investigations as to the composition

Fig. 3.—Small calculus located in pelvis: Stone was composed of uric acid and was negative to ordinary roentgen ray.

of urinary calculi in general, but rather to consider those stones that have been negative to the roentgen ray. It has been previously shown by various authors that certain calculi have a greater opacity than others,

and also that the constituents of those stones are directly responsible for the type of shadow shown in the roentgenogram. In the two series of cases presented, roentgenograms having been negative, other means were used in the diagnosis of calculi.

Fig. 4.—Calculus located in the lower calix: Constituents were uric acid and urate; negative before pyelography.

In considering the density of calculi, and in comparing the relative shadows cast by stones that differ in composition, there are several factors to be taken into consideration. It is known that the photographic effects of rays vary. Soft rays produce relatively too great, and hard rays relatively too little, effect on the photographic film. Irregularities of the film, secondary radiation, and exposure to heterogeneous rays are also disturbing factors. Under similar conditions the results obtained will be alike. Attempts have been made, however, to compare the relative opacity of different calculi submitted to rays at different times, varying degrees of exposure being used, and, in several instances, different apparatus. Naturally, under such conditions, no accurate conclusion could be formed.

There are certain accepted standards of radiography, proved by various investigators, as to the capacity of different bodies to absorb the rays and also the factors that affect this capacity. Some of these standards, as stated by Benoist, are as follows:

1. The specific opacity of a body for a given quality of roentgen rays and for a standard measured thickness is independent of the physical state of that body. This means that the same transparency of a body will be obtained whether it is in a solid or a liquid state.

2. The specific opacity of a body is independent of the method of grouping of its atoms or molecules.

3. The specific opacity of a body is independent of the combination of its atoms.

4. The specific opacity of a substance depends on its atomic weight.

Therefore, as a urinary calculus is composed of a number of constituents, each constituent having a different degree of opacity, then the opacity of the calculus will be equal to the total opacities of its constituents.

Table 1 contains a list of elements tabulated according to their atomic weights and also shows their absorption coefficients. A study of the table will tend to impress the fact that there is indeed a true relationship between the atomic weight and the absorption coefficient, although at present there is no accepted formula

TABLE 1.—*Relation Between Atomic Weight and Absorption Coefficient*

Element	Approximate Atomic Weight	Absorption Coefficient
Hydrogen	1	0.05
Oxygen	16	0.9
Sodium	23	1.9
Aluminum	27	3.4
Potassium	39	11.1
Calcium	40	14.4
Bromin	80	154.0
Silver	108	300.0
Iodin	127	315.0
Lead	207	569.0

connecting these values. It is noticeable that the opacity increases relatively much more slowly with the atomic weight in the lighter elements than in the heavy elements. Table 2 is a list of the simple constituents

TABLE 2.—*Components of Urinary Calculi*

Hydrogen.....1	Sodium.....23	Sulphur.....32
Carbon.....12	Magnesium.....24	Potassium.....39
Nitrogen.....14	Phosphorus.....31	Calcium.....40
Oxygen.....16		

composing urinary calculi, arranged according to their atomic weights, and, necessarily, according to their increasing density.

Combinations of the substances in Table 2 may be arranged in the same manner according to the sum of

Fig. 5.—Calculi of pelvis and ureter: Ureteral calculus composed of uric acid is prevented from entering bladder by stricture.

their atomic weights, and will be found to be in direct relationship to their opacity.

From Tables 1 and 2 one can understand why the soft parts of the body give such a poor shadow. These parts are composed of combinations of organic substances that are composed of hydrogen, carbon, nitro-

gen and oxygen, all of which have very low atomic weights.

OPACITY OF CALCULI

In considering the opacity of urinary calculi, we must bear in mind that the construction of the stone also plays an important part in its density. For instance, the medullary portion of a stone may be composed entirely of uric acid, and if the outer layers are poor in calcium salts or substance of heavy atomic weight, the shadow cast will be very weak, or even negative on the film. Then, again, the actual thickness of a stone will have a bearing on the type of shadow cast, although, as stated before, the larger of two stones will not necessarily reproduce the heaviest shadow, depending on the composition and the atomic weights of the constituents. Another factor in determining the opacity of a stone is its structure and, incidentally, its position, which affects the structure. That is, a stone located in a cavity or embedded in soft tissue has greater possibility for expansion than a stone that is having pressure applied on it by surrounding tissue. Thus, the first stone is more likely to be of a porous structure and will cast a shadow that is less dense than the compact calculus. In the case of the porous structure, the moisture absorbed undoubtedly plays some part in its density; because in several instances, bladder stones that had cast no shadow before removal, after dehydration had taken place, were positive to the roentgen ray, even in a pulverized condition. Therefore, we may consider that the opacity of a stone is governed by the arrangement of its constituents, by its thickness and by its structure.

Arcelin, in a comparative study of calculi, arranged a number of stones each cut to a thickness of 4 mm. on a plate, and exposed them to the roentgen rays. On examination he found the stones to be composed of the following constituents in the order of their opacity: calcium phosphate, casting the densest shadow; calcium oxalate; calcium and magnesium phosphate; ammoniomagnesium phosphate; calcium and magnesium urate; uric acid.

White, in a similar investigation, cut into cubes, each 5 mm. in thickness, stones that had previously been analyzed. The results obtained are as follows: calcium phosphate; calcium oxalate; cystin with a small amount of calcium; mixed urates; triple phosphate with a trace of calcium; xanthin with a trace of calcium; uric acid.

TABLE 3.—*Results in Keyes' Series of Cases*

	Positive	Erroneously Negative
Renal pelvis	32	6
Ureter	20	14
Bladder	16	12

The foregoing experiments resulted in shadows that were in conformity with the relative molecular weights and satisfy the standards of Benoist.

URINARY CALCULI UNDER DISCUSSION

As stated before, it is an accepted fact that a certain percentage of urinary calculi are negative to radiography. Keyes, in a consecutive series of cases in which stones were present, found the results given in Table 3.

After the ordinary radiography has failed to disclose stones of the urinary tract, in the presence of subjective symptoms we have several avenues of investigation. We have first of all the cystoscopic examination, which will disclose all vesical calculi, regardless of composition. For calculi of the upper urinary tract, we have the waxed tip catheter. This method in itself is liable to error, since markings on the wax are often received from other sources than stones during the operation. Finally, there is urography, which in several instances caused a previously negative stone to produce a shadow on the roentgen-ray film.

In the series of bladder cases presented in Table 4, roentgen-ray examination for stone was negative. In each case the diagnosis was made by use of the cystoscope. This series does not include stones positive to the roentgen ray.

TABLE 4.—*Vesical Calculi Negative to the Roentgen Ray*

Patient	Age	Duration of Symptoms	Roentgen-Ray Findings	Cystoscopic Findings	Composition of Stone
1. C. F. O.*	65	5 years	Negative	Positive	Uric acid; trace of phosphatic deposit
2. G. F. S..	40	6 months	Negative	Positive	Urate, and phosphatic deposit
3. J. M.†...	55	No symptoms	Negative	Positive	Xanthin; very slight trace of calcium; phosphatic deposit
4. T. F. N..	60	1 year	Negative	Positive	Uric acid; trace of phosphatic deposit
5. J. P.‡....	48	2 years	Negative	Positive	Uric acid; trace of phosphatic deposit
6. F. R.....	50	8 months	Negative	Positive	Uric acid; trace of phosphatic deposit
7. D. F. H..	51	4 months	Negative	Positive	Uric acid; trace of phosphatic deposit

* Patient also had four small calculi in the membranous urethra.
† Patient had symptoms of prostatic obstruction for a period of two years.
‡ Patient gave a history of stricture for three years.

A study of Table 4 will show that in no case was the roentgenogram positive. However, in the case of the xanthin stone, there was a suspicious shadow, not unlike a defect in the film, present, although no positive diagnosis was made. This stone was located behind an enlarged prostate, and there is a possibility that it would have been revealed if it had been located in the bladder.

Age.—All the patients were of such age as might lead one to suspect pathologic changes of the lower urinary tract.

Accompanying Pathologic Changes.—It is noticeable in this series that there were some pathologic changes, such as stricture of the urethra and enlargement of the prostate. This was also true in cases not included in this paper; undoubtedly many vesical calculi are passed through the urethra while still very small, unless there is some obstruction at the bladder neck. The exceptions are those included in a diverticulum or encrusted on the bladder wall.

Chemical Composition.—All the stones were composed of uric acid or urates, which are the constituents found in previous experiments. Xanthin, with a very slight trace of calcium, was the sole exception. Failure to photograph in this case was undoubtedly largely due to the position of the stone behind the prostatic enlargement. All the stones were coated by a thin film of phosphatic deposit. Other vesical calculi examined but not included here had a similar coating but of very much greater thickness and were positive to the roentgen ray.

RENAL CALCULI

A discussion of renal calculi would necessarily include those located in the ureter as well as in the pelvis and kidney substance. Consequently, a diagnosis of a calculus located in the parenchyma is well nigh impossible without the roentgen ray. If the composition of the stone is such as to render opacity difficult, it may be possible to miss it even with repeated examinations.

TABLE 5.—*Renal Calculi Negative to the Roentgen Ray*

Patient	Age	Location of Calculi	Roentgen-Ray Findings	Diagnosis by	Composition
8. M. K....	26	Pelvis	Negative	Pyelogram	Uric acid; trace of earthy and triple phosphate
9. H. N. P.	34	Pelvis	Negative	Pyelogram	Uric acid; trace of urate; thin line of calcium oxalate
10. C. F. G.	32	Ureter	Negative	Waxed tip catheter and urethrogram	Uric acid; triple phosphate
11. C. H....	27	Ureter	Negative	Waxed tip catheter and urethrogram	Urate; trace of oxalate
12. M. F. S.	37	Pelvis	Negative	Pyelogram	Uric acid; triple phosphate
13. F. C....	29	Pelvis	Negative	Pyelogram	Uric acid; urate; trace of oxalate
14. G. S....	33	Pelvis or ureter	Negative	Passed by urethra	Uric acid; triple phosphate
15. D. F....	30	Pelvis or ureter	Negative	Passed by urethra	Uric acid; triple phosphate
16. C. A....	33	Pelvis or ureter	Negative	Passed by urethra	Urate; trace of phosphate

In this series, the roentgen-ray findings were negative in every case. In six of the cases a diagnosis was completed with the aid of urography. The agents used were 20 per cent. neosilvol or sodium iodid solution, 12 per cent. Without entering into a discussion as to the relative merits of either medium, I would say that in routine urography the neosilvol solution seemed to be less irritating. In all cases the measure was used as a routine. In the last three cases no diagnosis was made, but within seventy-two hours after examination the calculi were passed by the urethra.

Uric acid and urates in this series were also the chief constituents. In no case was there any marked infection, nor was there any decrease in the excretory function of the kidney. Undoubtedly, if the calculi had not been discovered at the time of examination they would have increased in size and, in the presence of infection, accumulated other urinary salts of a greater atomic weight, so that later roentgenograms would have shown a shadow. All the foregoing calculi were doubtless in the process of early formation and within a short time would have taken on the calcium salts which are the common constituents of kidney and ureter stones.

CONCLUSIONS

1. The relative opacity of a urinary calculus depends on the total molecular or atomic weights of its constituents and is influenced by its structure and thickness.

2. Some urinary calculi having constituents of low atomic weights are negative to the roentgen ray. These include stones composed of uric acid, urates and triple phosphate.

3. The diagnosis of urinary calculi should not be guided entirely by radiographic reports.

4. Cystoscopy and urography are very necessary as well as valuable adjuncts in the diagnosis of urinary calculi.

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IMPACTED CALCULI OF THE URETER

TREATMENT EMPLOYED AND RESULTS OBTAINED IN SIXTY CASES *

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This paper comprises a study of sixty cases of calculi that have left the kidney and become impacted in various levels of the ureter. While these cases do not form a large group, the study of them may bring out some interesting information relative to their disposition and the subsequent findings. All occurred in private practice. It is my purpose in this study to show the pathology, the symptoms, and the various forms of treatment for them, with a particular view of arriving at the best end-results. It is the impacted calculus in which we are particularly interested. Those which rapidly descend the ureter will not be considered. A number will lodge temporarily in the ureter, and then pass on into the bladder; these also are excluded. Only those which, after repeated attacks of ureteral colic, fail to move downward will be termed impacted.

ORIGIN

All ureteral stones are primarily renal. They form in the calices as a result of stasis, and the deposit of precipitated urinary salts, with pus or bacteria as a nucleus. In a large percentage of this series, the staphylococcus is present. When one sees a patient whose urine is loaded with staphylococci, immediately one should become suspicious of the presence of calculi somewhere along the urinary tract. Bacilli of the colon groups occur much less often. A calculus once formed may remain a renal stone or may become dislodged, drop into the renal pelvis, and slip down the ureter. It may reach the bladder in a few hours, or remain in the ureter for years.

PATHOLOGY

Assuming that the majority of these calculi are formed in the presence of bacteria, it is not unnatural to find a pyelitis present. This catarrhal inflammation of the pelvic mucosa does not end abruptly at the pelvic ureteral junction but extends down the lumen of the ureter. It is a continuous membrane and subject to the same infection as the pelvis. This is a point rather important to consider; namely, that there is a mild inflammatory process going on in the mucosa of the ureter. To complicate the passage of the calculus, then, we often have, first, a ureteritis, presenting inflammatory changes, irritable and easily traumatized. Continued any length of time, this could easily develop into a ureteral stricture. When Hunner first called attention to frequency of ureteral stricture, he was doubted and discredited. Today, we all know the frequency of this condition. As far back as 1902, Howard Kelly [1] wrote: "Obstruction is the generic term for any hindrance to the downflow of the urine, while stricture is specific in its designation, being limited to intrinsic narrowings due to disease of the ureteral walls. . . . Strictures are caused by an inflammation in the ureteral walls produced by commoner pyogenic cocci, by

* Read before the Section on Urology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

1. Kelly, H. A.: Stricture of the Ureter, J. A. M. A. 39: 363-369 (Aug. 16) 1902.

the gonococcus, and by the tubercle bacilli." When the pathology is understood, it is not so difficult to see just why some ureteral calculi become impacted. They may lodge against a stricture, and no hydrostatic or peristaltic force behind them would ever propel them into the ureter. These strictures may involve only the mucosa and the submucosa, or they may extend throughout all the structures of the ureter, and even cause periureteritis. In one case the thickness of the ureteral wall was normal except at the point of the stricture, where it measured 1 cm. from lumen to periphery. For familiar examples, let us recall the various types of strictures found in the male urethra. Certain classic points for stricture of the ureter have been described by Kelly; namely, the ureteropelvic junction, the place of crossing of the ureter over the iliac artery as it drops into the pelvis through the broad ligament in women, and the ampulla of the ureter in the bladder wall. In my experience, strictures occur anywhere along the ureter.

It is now recognized that bacteria play an important rôle in the formation of renal calculi, because of their common occurrence in bone suppuration and chronic infection of the urinary tract. In this group, I found the various types of *B. coli-communis, Staphylococcus aureus* and *albus, Bacillus catarrhalis,* and the tubercle bacillus. One group of bacteria may be found alone, or they may be found in combination. The commonest is the colon bacillus and the staphylococcus. The presence of these bacteria were ascertained by smears of sediment taken from the kidney or ureters, and by cultures. It is a commonly known phenomenon that chronic cystitis with obstruction very frequently results in vesicle calculus, due to stasis, and obstruction to the outflow of urine. When the same conditions are present to a lesser degree in the calix and pelvis of the kidney, it is not unnatural to find the same formation taking place. It is also found that with many of these cases, a pyelitis is also present. The absence of bacteria at the time of the examination does not exclude the bacterial origin, as a pyelitis may have existed at the time the calculi were formed and subsequently cleared up.

In the cases here considered, 48 per cent. did not show bacteria at the time of examination, 27 per cent. showed staphylococcus present, 20 per cent. showed staphylococcus with colon bacilli, 4.5 per cent. showed colon bacilli, and 0.5 per cent. showed tubercle bacilli. This shows the great preponderance of the staphylococcus as it occurred singly and in combination in 47.5 per cent. of all the stone cases.

Presence of Pus.—With bacteria present, it is evident on examination that pus is apt to occur, and we find it occurring in 80 per cent. of the cases, while 20 per cent. are negative for pus or pus cells.

Hematuria.—When the microscopic character of these calculi is recalled, being composed of crystals with sharp edges, it is not unnatural that we should find blood or red corpuscles in the urine. In fact, a severe renal colic, accompanied by red corpuscles in the urine, is proof enough of the presence of a calculus, whether it is ever found or not. On making the examination, this history becomes an important finding. Seventy-three per cent. of the patients gave a history of hematuria, while 27 per cent. had no record of bleeding. In 94 per cent. of the cases, red corpuscles were found by microscopic examination. This examination should never be overlooked.

Size.—The calculi varied from 3 to 30 mm. in length. In averaging up the calculi, only the length will be considered. The average length was 8.7 mm. Those which were found at operation were mostly rough and adherent to the delicate wall of the ureter.

LOCATION

The location of the calculi in the ureter is most interesting. Seventy-six per cent. of the stones were in the lower third of the ureter, 19 per cent. in the upper third, and 5 per cent. in the middle third. It has been taught for many years that there were certain constricted portions of the ureter: namely, the ureteral pelvic junction at the brim of the pelvis, at the point in the female where the ureter traverses the broad ligament, and at the ampulla of the ureter where it joins the bladder. This I believe to be incorrect. Calculi may be impacted in any portion of the urethra. However, by far the most prevalent point is in the lower third, that portion of the ureter which runs subcutaneously into the bladder, where it is naturally protected by constricting muscle which tends to prevent regurgitation up the ureter. This location offers a strong resistance to the passage of the calculi which are descending toward the bladder. We are not surprised, therefore, to find 76 per cent. of the calculi in this portion of the ureter, where the ureter is large and elastic, and expands readily. Nineteen per cent. were lodged in the upper third. These calculi were dropped into the ureter from the pelvis, and the tube would not expand and allow them to pass farther on.

CHRONOLOGY

One of the most interesting facts brought to light was the average duration of these calculi in the ureter before they came to operation and relief. The average time of the cases we are considering was nine years. It is well known to urologists that these patients have been operated on for every imaginable condition excepting the calculus present. Every physician could recite many such instances. I shall mention just one:

> A man, aged 49, had suffered with pain in his right side for nine years. It was a typical renal colic radiating into the testis. The appearance of blood was present in the urine. The patient had had four major operations: an appendectomy, two for the removal of intestinal adhesions, and a nephrotomy. The kidney had been searched for a calculus. A roentgenogram showed shadows in the upper right abdomen, which proved to be gallstones. A film of the lower urinary tract revealed a calculus in the middle third of the ureter. Catheterization of this side showed a very definite obstruction and very little urinary function. The calculus was removed by an extraperitoneal ureterolithotomy, and the pains of the last seven years have been entirely relieved.

The average distance from the bladder of the stones was 8.5 cm.

In 68 per cent. of the cases, delayed function was observed. In 12 per cent., there was a total obstruction and no kidney function. In 20 per cent., there was no impairment of the renal function noted by the phenolsulphonephthalein test.

SYMPTOMS

The youngest patient was 23 years old, the oldest patient 70, and the average age was 43. The greatest number of cases occurred between the ages of 30 and 50. Ages from 20 to 29 contained 13 per cent. of the cases; from 30 to 39 years, 34 per cent.; from 50 to 59 years, 13 per cent.; from 60 to 69 years, 8 per cent.,

and 70 years and over, less than 1 per cent. In other words, impacted calculi seem to cause a disease similar to gallstones, largely involving those in middle life. This may be due to overeating, sluggish habits, and the result of infection.

It was found that 96 per cent. of the calculi were solitary, the remainder showing two or three impacted calculi. These figures do not take in other renal calculi which have been passed previously.

ROENTGENOGRAMS

Demonstrations of ureteral calculi by roentgenograms are largely a question of fine roentgen-ray technic. The gas in the alimentary canal should be gotten rid of to avoid a covering of the stone with a gas cloud. The results with compression are better than those without it. Absence of all motion within the abdomen is important, as blurring has spoiled many a picture. The roentgen ray gave positive shadows in 72 per cent. of the cases. The remainder were diagnosed by means of clinical symptoms, the wax tipped bougie, and obstruction to the catheter. A catheter meeting a definite obstruction, with pathologic urine or no urinary secretion at all, always gives a splendid clue as to the point of trouble in the ureter. By counting off the centimeters on the catheter and then examining the film, we are often able to point out the calculus which would have otherwise been overlooked, as it sometimes lies behind a transverse process. Next to the ureteral catheter, the roentgenogram is the most valuable diagnostic aid.

SEX

About 80 per cent. of the patients were males, while only 20 per cent. were females. This difference is hard to explain. It is possibly due to the more vigorous life of the male, and his greater exposure to the various infections, injuries and traumatisms.

PAIN

The pain of the impacted calculi has a dual character. First comes the classic colic, very intense and conveying pain impulses along the course of the ureter, and the occurrence of sympathetic pains allied with it, as in the bladder, testes and kidney. It is produced by temporary obstruction and the painful peristaltic waves driven against the impacted calculus. This pain backs up into the kidney; after a time, the patient experiences a throbbing sensation; vomiting frequently occurs. The patient becomes pale and frequently collapses. The attacks may occur at any hour of the day or night. As a rule, the calculus is moved a trifle and some urine escapes down the ureter, thus relieving the great tension back of it. The acute colic subsides and the pain is then a dull ache in the region of the kidney. At the point of constriction in the ureter, there is frequently marked tenderness. In addition to this, there may be pain in the bladder and irritation of that organ, producing frequency and some tenesmus. Often the pain is so severe as to simulate an acute abdominal lesion, and this explains why a number of these patients have been operated on for acute appendicitis. There was a definite pain of some character in the whole series of patients; none were free of pain, and it was for this symptom that they applied for examination and relief.

The character of the pain in 74 per cent. of the cases at the time of examination was mild. In 12 per cent., the pains were moderately severe; in 14 per cent., very severe. Sixty-eight per cent. of the patients had colic in both kidney and ureter, and 24 per cent. had uncomplicated ureteral colic. The interesting factor in these figures is the large percentage of ureteral calculi which produced a simple renal colic without pain in the ureter. This occurrence is a referred pain. It is illustrated by the following case:

> A man, aged 49, had suffered for three years with periodic pain and colic in the region of the left kidney, accompanied with nausea and vomiting. He had no attack until sixteen months later, when he again had intense renal colic. Roentgenograms were taken many times but did not include the whole kidney, ureter, and bladder region. On cystoscopic examination, an obstruction was found in the left ureter, 3 cm. from the bladder. A roentgenogram of the pelvis revealed an impacted calculus measuring 10 by 22 mm. Had the pain been lower, or had there been ureteral colic, doubtless the physician would have taken a picture lower down.

This case illustrates the necessity of having all roentgenograms include the whole urologic tract. A number of calculi have been missed on account of this fault in technic.

Unilateral backache was noted in 90 per cent. As a rule, this was not severe and was best described as a dull ache or a heavy feeling. A rise of temperature of 1 or 2 degrees, accompanied by mild chills, was noted in 70 per cent. of the cases. This rise in temperature indicates an obstruction of the urine with the presence of infection. As soon as the obstruction was released, either by catheterization or by lithotomy, the temperature rapidly returned to normal.

NUMBER OF ATTACKS

The number of attacks of colic and pain varied from one to many, many being implied when the patient had lost count of the number of attacks. This comprised 40 per cent. of them. The remainder averaged from two to six attacks. There was no rule to govern this, but it was surprising how frequently a patient would go a number of years between attacks, and the calculi would not move. This is explained by the urine channeling the calculus.

TREATMENT

The treatment of the impacted calculus is always a problem. The patient wishes relief from the severe attacks of colic and the dull constant pain, which more or less incapacitates him, keeps him from pursuing his occupation and thereby cuts off his income. In the second place, the impacted calculus undoubtedly injures the ureter at the point of impaction, and beyond this point causes hydronephrosis. Dilatation of the pelvis and calices result, setting up or continuing infection of the mucous membrane. This, in time, is apt to progress to the stage of pyonephrosis, with partial or total destruction of the kidney gland. It is often demonstrated by high blood chemical findings and a poor phenolsulphonephthalein showing, which has been observed in these patients. A long impacted calculus is a menace to the patient's renal function, and consequently will shorten his life. The aim of the treatment will be to free the patient from the impaction in the ureter with as little trauma and shock as possible. It has been observed that many calculi, apparently impacted, will complete the journey to the bladder without operative intervention.

Our first procedure is the dilation of the lower third of the ureter. As mentioned before, the greatest number of obstructions takes place in that portion of the

ureter in the bladder wall, and just beyond it. The most efficient cystoscope for dilation is the one of the operating type; where large catheters may be used, and the thrust of the catheter is almost a straight line, occasionally meatotomy of the ureteral opening will help. Caulk has reported a number of very successful dilations of the ureter by inserting additional catheters as the ureter is dilated. This is largely a matter of skill. I have found it advantageous at times to inject liquid petrolatum into the ureter. It at least coats the calculus with oil and helps to free the adhesions, and, in my opinion, has been an aid. In the present series, this method was successful in assisting the calculus into the bladder in 50 per cent. of the cases.

Those calculi which are frankly too large to descend into the bladder, and are tightly wedged and adherent to the wall, should be removed by operation. Those in the upper third of the ureter are best exposed by a lumbar incision, the ureter being picked up and the incision made just over the calculus. Those in the middle and lower third are best reached by an abdominal incision about 5 cm. inside and parallel with the inguinal fold, the skin, fascia and transversalis muscle being cut, the peritoneum pushed toward the median line, and the ureter located at the pelvic brim. There are several points in this technic that have been found useful. Frequently the ureter is large and embedded in the posterior wall of the peritoneum, to which it is firmly attached. Some have found difficulty in locating the ureter because it was hidden behind the peritoneal retractor. It is always wise not to strip the ureter too freely, upward or downward. Its blood supply consists of little twigs along its course, and the tearing of these will devitalize the ureter or cause bleeding. It has been found that the calculi impacted well down in the pelvis near the bladder are the most difficult of all. Here there may be a stricture or an inflammatory condition of the ureteral wall, so that it has been at times very difficult to palpate the calculus. It could not be felt through the thick ureteral wall. Another circumstance which has been experienced is that rarely do these impacted calculi free themselves so that they can be milked up the ureter into a more accessible point for delivery. They seem to be adherent to the mucosa, and their sharp crystals hold on very tenaciously. It is always better to open the ureter directly above the site of impaction.

As a rule, only the outer coat of the ureter was sutured. A rubber tube will take care of the draining, which is often beneficial to the kidney above. Some of the wounds will not leak urine at all following the operation; others as a rule close within two weeks' time.

In one patient, an extraperitoneal delivery was made, and in another patient the calculus was delivered through cystotomy. This was in a man, aged 42, with a uric acid calculus at the vesico-ureteral junction. It did not show in roentgenograms, but the cystoscope revealed the calculus with its nose projecting into the bladder. The calculus measured 30 mm. in length. The bladder was opened and the calculus was lifted out of the ureter. The patient had suffered for twenty-eight years, and had been operated on several times before to relieve his cystitis.

COMPLICATIONS

Strictures.—In 18 per cent. of the cases of ureterolithotomy, marked organized strictures were found. These strictures were divided and have since been followed up by dilations with catheters and bougies. The strictures are a very serious problem, as they have a tendency to close down and entirely shut off the flow of the urine.

A man, aged 49, who had an impacted calculus and stricture of the right ureter just beyond the bladder, was treated by extraperitoneal ureterolithotomy. The wound closed nicely. A month after operation, the ureter was dilated with a No. 5 catheter and the urine was found to be normal. Six months after the operation, the patient began to complain of pain in the bladder and soreness at the lower end of the ureter. All attempts to pass the point of stricture were unsuccessful. He complained of so much pain that nine months after the first operation the right kidney was explored. It was found to be of normal size, but a very blue, large pelvis, and the ureter under great pressure were discovered. Nephrectomy was decided as the only solution for the stricture, and since that time, the patient has enjoyed good health and has been free from pain.

Another patient, who had had a right sided colic for several years, came in for examination. A calculus was located 11 cm. from the bladder. On account of repeated colic, and the inability of catheters to pass the stricture, a ureterolithotomy was performed. The interesting point observed in this patient was that two soft calculi were lifted out of the strictured ureter. At this portion of the ureter, there was considerable thickening, and extending about 4 cm., the walls were indurated and not compressible; above and below this point, the ureter was apparently normal. In this case, the stricture of the ureter was primary and the calculi were secondary.

Another complication of ureterolithotomy is the establishment of a uretero-abdominal fistula.

This occurred in a woman, aged 33, who had suffered from ureteral colic for six months. An impacted calculus was located in the right ureter 10 cm. from the bladder. The patient was submitted to dilation of the ureter, but nothing would dislodge the stone. A ureterolithotomy was performed, and a calculus 15 cm. long was found impacted against a stricture. After considerable difficulty, the calculus was lifted out of its bed and delivered. The walls of the ureter were thin and partly torn across. The tear was repaired with No. 0 plain catgut sutures. The patient made an easy convalescence but has drained urine ever since. All attempts to dilate the stricture have been without avail and no urine is passing this lower segment, either by the indigocarmen test or by catheter. The ureter was embedded in inflammatory tissue, making a repair out of the question, so nephrectomy was performed.

At times, the ureters are very delicate and will not stand a great deal of trauma. The bruises and scratches of the calculus, together with the incision, have a tendency to contract the lumen and permanently mar the tube. In the majority of cases, however, the ureter repairs rapidly and has not suffered from the operation.

OPERATIVE TECHNIC

Of first importance in operative technic is an accurate location of the impacted calculus. This, as I mentioned before, is accomplished by means of a ureteral catheter and the roentgenogram. It is my belief that many ureteral calculi have been missed by operators because of uncertainty of the exact level of the stone in the ureter not being determined beforehand. Frequently a patient will allow time to elapse between the examination and the operation, so a roentgenogram should be made the day before the operation. In the second place, the operative field should be divided into three zones: the upper, the lower, and the middle third.

1. The upper zone is best reached through a lumbar incision, going through Petit's triangle, pushing aside the perineal fat, and picking up the ureter on the psoas muscle. In this region the calculus is very readily

palpated. A stitch or two of fine catgut in the outer layer will hold the ureter together and a rubber tube of No. 20 French makes a serviceable drain.

2. The middle zone is best reached through an abdominal incision, 1 inch inside the anterior superior spine, and the tissues cut are the skin, the subcutaneous fascia, and some of the fibers of the transversalis muscle. A large, self retaining tractor is placed in the wound, and the brim of the pelvis is located. The first landmark is the external iliac artery, which can be felt with its strong pulsation; crossing this large vessel and dipping into the pelvis is the ureter. On account of the many changes in its caliber and the thickness of its walls, it will sometimes be difficult to recognize. If, however, its course is accurately known, much time and labor will be saved. Again reference is made to the roentgenogram, and the calculus can be located by comparing it to the bony structure, using the crest of the ilium as a guide.

3. The lower third is more difficult. Here the ureter dips abruptly away from the operator and traverses the deep structures of the pelvis. I often encounter a greatly thickened ureter, inflammatory tissue, and lymphatic glands, these making palpation of the calculus difficult. The lower portion of the ureter cannot be brought up into the wound and is not elastic; as the lower end is firmly fixed in the bladder, extra long retractors are necessary. The Cameron light has been found to be of great service. It can be slipped underneath the ureter, and transillumination of the stone is possible. Calculi near the bladder are invariably impacted and will not lend themselves to being dislodged or moved by milking. As a rule, time is saved by exposing the ureter all the way to the bladder and incising directly over the calculus. A transperitoneal exposure of the ureter is rarely indicated unless intra-abdominal work has first been performed and the calculus has been located secondarily. In closing up the wound, a drainage tube is always inserted.

SUMMARY

1. While many ureteral calculi will pass through the ureter and be safely conducted to the bladder, a number of them will become impacted in the ureter.

2. They are held in the ureter very often by such pathologic conditions as stricture, the size of the calculus, or the rough and crystal-like surface of the stone.

3. The impacted calculi often remain in the ureter for years, and in this series of cases the average length of time was nine years.

4. A calculus, once impacted, blocks off the urine, produces pain, pressure, dilatation of the ureter and renal pelvis, keeps up inflammation of the mucous membrane, and in time impairs the function of the kidney.

5. These impacted calculi cause the patient to suffer intermittent or continuous pain for years, constantly threatening him with colic; as a result, the general health is markedly impaired.

6. Stricture of the ureter plays a considerable rôle in the impaction of the calculi, being found in 18 per cent. of the cases.

7. Contrary to previous teaching, I have not found a normal constriction of the ureter except in the lower third, where the ureter travels through the bladder wall.

8. The staphylococcus plays an important rôle in the formation of the stones, as it was found in 47.5 per cent. of all the stone cases.

9. Hematuria, either as microscopic or as red corpuscles, occurred in 94 per cent. of the cases.

10. Sixty-seven per cent. of all the impacted calculi were in the lower third of the ureter.

11. Impacted calculi are apparently a disease of middle life, the average age of the patients being 43 years.

12. In 96 per cent. of the cases, the calculi were solitary.

13. Ureteral dilation should be attempted first, as this method was successful in 50 per cent. of the cases.

14. Extraperitoneal ureterolithotomy should be performed when ureteral dilation has failed.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SHEA AND PEACOCK

DR. WILLIAM E. LOWER, Cleveland: I have not been as successful as some surgeons have been in coaxing these stones down by manipulation. In the case of an impacted stone, I think it is a mistake to wait too long before operating. In many cases the stone will not pass before definite damage has been done to the kidney. I try to remove the stone by a muscle splitting operation. A straight incision in the back instead of the oblique incision will often make it possible to remove a stone from the upper end of the ureter. It is possible to remove many of these stones through a small incision, although I do not recommend too small an incision if it increases traction on the wound. If there has been much periureteral inflammation, the ureter should be moved as little as possible. If the stone is in the kidney pelvis, it can often be removed without manipulating the kidney: it is better to take the operation to the stone rather than to manipulate the kidney and ureter unnecessarily.

DR. W. C. QUINBY, Boston: I have had no experience with the analysis of stones as regards their shadow casting qualities, except in those instances, which we see rather more often than in the past, in which the stone consists almost entirely of cystin. There have been several cases in my clinic of cystin stones, which were found by the negative shadows cast in the roentgen-ray film. If one feels that there is a possibility of such a condition being present, I think it is wise to have the urine examined by the chemist for cystin. Cystinuria is a readily demonstrable condition. I wish to congratulate Dr. Peacock on his excellent presentation, in which I was much interested. I, too, feel very strongly that the manipulations that attempt to get the stone to pass by the normal passages are frequently overdone. The trauma and damage to the kidney that may follow too zealous attempts are very real. I have came to the point at which, if the dilation of the ureteral orifice, followed by some slight manipulation, fails, I desist from further manipulation and operate forthwith. It was mentioned by Dr. Peacock and Dr. Lower that one may sometimes find a large amount of periurethritis; in one of these instances, I was compelled to resect from 1 to 1½ inches of the ureter—the kidney being too good to be sacrificed—followed by an end to end suture. There was no leakage following the suture, and later the ureter was demonstrated to be patent. I have seen only one or two instances like this, but feel that we should use this procedure more in the future than we have in the past. There is one point in the delivery of stones that some may overlook. If the ureter is lifted far from its bed in getting the stone out, it is very important to see that it is put back in place before the wound is closed. I have had to reenter the field on some of these occasions, because of postoperative complications due to angulated ureter.

DR. DANIEL N. EISENDRATH, Chicago: I agree with Drs. Lower and Quinby that one should not wait too long before ureterotomy is performed in cases in which nonoperative methods have been unsuccessful. At times there is such a severe febrile reaction after dilation of the ureter in these cases as to necessitate a nephrectomy. I have recently had such an experience and learn that an experienced urologist was obliged to remove the kidney in four such cases. In regard to the technic of operative removal of calculi impacted in the juxtavesical and intraparietal portions of the ureter, we should always make an

incision sufficiently large to afford a visual exposure of the point of impaction. A fairly large percentage of cases are complicated by stricture formation, and irreparable damage can result from incision into the ureter by sense of touch alone. I have employed a series of traction fine catgut sutures, beginning at the brim of the true pelvis and passing through the outer coat of the ureter. These enable me to expose successively deeper and deeper portions of the ureter by changing it from a curved tube into a straight one, so as to incise under guidance of the eye. I should like to have Dr. Peacock tell us whether he thinks that the stricture of the ureter in these cases is primary and the calculus secondary, or vice versa; i. e., is the stricture due to decubitus following impaction of the calculus?

DR. R. ARTHUR HOOE, Washington, D. C.: I will mention a case I recently saw that would serve well to illustrate the importance, as well as the difficulty, sometimes encountered in distinguishing between intra-ureteral obstructions and those due to pressure from without. This woman had had a pelvic operation some ten years previously, and presented symptoms of urinary obstruction. The point of the catheter arrested just within the ureter was shown by roentgenogram to be in contact with a rather large shadow, the size of the end of a thumb. After injection through the catheter of 15 per cent. sodium iodid, a second exposure showed the ureter so completely drawn around the first shadow as almost to encircle it. A laparotomy was performed, and a large body was found pushing into the broad ligament, which was tightly bound down. The pelvis was a mass of adhesions. After the mass had been elevated, the catheter passed easily to the kidney pelvis. Regarding ureteral calculi, I appreciate what Dr. Quinby has said; but as a result of a number of recent experiences, one, notably—the passage of a very large calculus by a short and very stout person who wished to avoid operation—I am inclined to believe that while in many cases operation is necessary, yet in another large group temporizing is the wisest procedure.

DR. RALPH L. DOURMASHKIN, New York: The point I wish to discuss is what determines complete blockage of the kidney and when we should operate. My remarks are based on the study of 122 cases. There are two types of cases. In one the patient is acutely ill; there is an acutely impacted calculus in the ureter and an acutely infected kidney. In such cases, too much temporizing may lead to disastrous results, and the stone, as a rule, must be removed by operation. In the other type we are dealing with a chronic impaction of the stone. I have seen cases in which the stone has been impacted for many years and yet there was no renal infection, the kidney specimens of urine showing but a few pus cells, although the function of the kidney had suffered a great deal. What saves the kidney in these cases? If we examine the stone removed either by an operation or by intra-ureteral manipulations, we find a definite groove or a notch on the surface of the stone, which is nature's method of maintaining drainage, and that is the thing that saves the kidney. In these cases, although we are unable to pass a catheter by the stone, we are still able to collect urine through the catheter below the obstruction, the urine finding its way through the groove. I believe that some of these cases should be treated conservatively, and the patient given the benefit of cystoscopic manipulations. In this series the stones were removed by intra-ureteral manipulations in eighty-three cases, or 68 per cent. Eighteen patients, or 14.7 per cent., were operated on. It is said that the presence of a stone in the ureter is due to stricture. In a number of my cases the stones were removed by manipulations, the ureter being dilated to Size 20 with the tunneled bougies that I described some time ago. Certainly the patients did not have any strictures after such a dilation, and yet they continued to manufacture stones.

DR. CHARLES S. VIVIAN, Phoenix, Ariz.: I suppose that after having a stone pass, by operative procedure or manipulation, it is well to pass the catheter, for subsequently I have found developing stricture. A patient had all the evidences of a retroperitoneal accumulation of pus. The abscess was drained retroperitoneally, and no stone was found. After the acute condition had subsided, she spontaneously passed a stone as big as the end of my index finger. The interesting point was that I catheterized her subsequently and found that the urine from that kidney contained as much urea as that from the kidney on the other side.

DR. A. L. CHUTE, Boston: It has been a great pleasure to listen to these two papers. Dr. Peacock showed slides in which, in certain cases, a roentgen-ray examination had not been made of the entire urinary tract. It seems to me it is most unwise not to take in the whole tract whenever we use the roentgen ray; we so frequently find the underlying lesion in the part we did not take. I think we are, as a rule, unwise to leave a ureteral stone in the presence of pus and pain. There are some instances of small stones low in the ureter in which one can open the ureter some little distance above the stone, reach down with a long forceps, which some man in Rochester has devised, and work the stone up the ureter. There are instances, of course, in which this cannot be done; but, when it is possible, I think it is a better procedure than dissecting the lower end of the ureter free or opening blindly onto a stone in the lower end of the ureter.

DR. W. G. SCHULTZ, Tucson, Ariz.: To illustrate the dangers we sometimes get into, I will recite the case of a patient who had been diagnosed as having appendicitis. Finally a roentgen-ray examination disclosed a stone in the ureter about 5 cm. from the bladder. The stone was about the size of a bean, and numerous attempts to pass it with catheters and dilators failed. I used a Bransford Lewis dilator and, in attempting to remove it, found that I could not get it out. I made a roentgenogram and found that the dilator had acted as a forceps rather than as a dilator and had engaged the stone. I had to remove it by firm, gentle pressure and it took about forty-five minutes. The patient made an uneventful recovery and developed no complications.

DR. DANIEL E. SHEA, Hartford, Conn.: One point I wish to bring out is the necessity of pyelography. I think we have reached the point at which we recognize that in skilled hands today the danger is practically nil. I hope in presenting this article that I can impress on the men who are not in the specialty of urology the necessity of a urologic study, when stone is suspected to be anywhere in the urinary tract, rather than depend on an ordinary roentgenogram.

DR. ALEXANDER H. PEACOCK, Seattle: Dr. Lower spoke of transperitoneal exposure, but I myself prefer the extraperitoneal method. I can see no harm in cutting a few muscles along the transversalis. Dr. Eisendrath spoke of a good exposure and of illumination. One of the best things I know of is the Cameron light. It gives excellent illumination, and can be used just where one wishes. The query was put, "Which is primary, calculus or stricture?" This is a matter of speculation. It seems to me that if calculus is a primary affair, stricture will result from the impaction. I had the pleasure of spending a day in Baltimore with Dr. Hunner, and found him to be one of the finest men in the world. He demonstrates many "hangs," but in nine tenths of them, the hang occurred in the intramural portion of the ureter. I feel that possibly he is making a faulty interpretation by his technical methods. In regard to pyelographic kinks, many are simply those of position, produced by a rigid catheter.

Full-Time Obstetrician.—I believe that the Rotunda Hospital, Dublin, owes very much of its high reputation to the fact that the master is given a house actually in the hospital, and therefore, no matter how big his outside practice may be, he is of necessity in the hospital for, say, sixteen out of twenty-four hours; further, he is in sole charge of the hospital. A professor of midwifery (not resident in a hospital) who has to earn his livelihood in private practice is very greatly handicapped; the most he can hope to do is to attend for routine work a few hours each morning and be available for major emergencies; in the latter case (being human) he is always anxious to get back to his practice, and cannot be expected to devote the time necessary for watching cases, if active measures are at all applicable; nor has he the time to give to research. The plan of appointing whole-time professors is equally sound, and while I believe that the professor's services should be available for any one in his district, the fact of his being financially independent of practice is of the utmost importance to the efficiency of his hospital.—Tottenham, R. E.: *Irish J. M. Sc.*, November, 1925, p. 524.

THE INFLUENCE OF FOCAL INFECTIONS *

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In studying the influence of focal infections on the human organism, we should fully realize that we are dealing largely with theoretical considerations and not with a definite, demonstrable fact or series of facts subject to a testing process, such as the pathologist or bacteriologist carries out in a laboratory experiment.

Any attitude on this subject, necessarily, must be largely a matter of impression on the part of the investigator, tinged somewhat by his state of mind toward the problem under consideration. Notwithstanding that this paper is the result of a careful analysis of 500 of my own cases, all studied in detail by one clinician, the opinions in reference to the influence of the focal infections, even in this group, are the impressions made on me by the results obtained in treatment, and are by no means facts, or to be taken as complete conclusive evidence of the direct causative relationship of focal infections to nervous or mental disease.

I do not mean to imply, on the other hand, that I do not have definitely formed conclusions in my own mind on this subject, but these again are influenced by my attitude toward both the neuroses and the psychoses. I lay it down as a fundamental principle of therapeutics in mental and nervous diseases that, unless we have a definite theory of disease to work on, we need not expect results; to treat a mental state by drugs or psychotherapy, is to do little less than the Christian scientist would do with the same cases.

I hold that a man or woman who was sane, had always been sane up to one month ago and is now insane, so insane, indeed, that he or she is in grave danger of confinement to an insane asylum, must have some real cause for this condition, and that this cause must be a definite chemical poisoning, either bacterial or visceral in nature.

MEDICAL INSANITY

The thinking psychiatrist has come to view thought as something like the "heat" produced by muscular activity, as a manifestation of the action of the blood on the cerebral tissues in its passage through them, and not as some function inherent in the cells of and by themselves. In this sense, the brain becomes an organ for the registration of thought rather than for the production of something original. It is very much as if the liver said, "I will produce yellow or green bile." The thought processes are the products of chemical change with resultant energizing manifestations produced by the circulation of the blood through the brain tissues, and this thought process depends on two factors: the chemical composition of the blood, and the type of cell on which it acts. If this cell is a normal, healthy cell, we may expect a thought reaction within the normal limits; if it is decadent or diseased, the reaction will vary with the type of disease. This becomes of importance in the senile brain, the arteriosclerotic brain, the brain diseased by syphilis, sleeping sickness, etc. Here, also, we must consider the defective brain due to birth, to development and to heredity.

From the point of view of the adolescent psychoses, which present the great problem of insanity, in which inherited influences can be traced in less than 50 per cent. of cases, and in which we may assume, in a large majority of cases, a normal brain structure, chemical changes in the blood become of the greatest importance. These may be in the nature of artificial chemicals introduced from without, as in acute alcohol poisoning, opium, cocain, cannabis indica, lead carbon monoxid gas, etc.

In studying insanity, we are much more interested in the less well defined chemical changes introduced from within by disease of the heart, lungs, kidneys, liver, pancreas, the bone marrow, the spleen, the sex organs, and by that very important and less well understood group of glands of internal secretoin, the thyroid, the pituitary, the suprarenal, and the deranging effect of these on the chemistry of the other viscera mentioned above. As a rule, we have various and complex reactions of one on the other of the foregoing, because we lay it down as a rule of pathologic physiology that we cannot have a derangement of function of any one of the vital organs of the body, without some, and usually serious, derangement of function of all the other vital structures. When we add to this the derangement of the physical constitution of the blood in the severe anemias, we have still a further complicating factor.

To realize how complex a situation we are dealing with, one needs only to study an advancing case of fatal tuberculosis to the prelethal mental changes and the final fatal delirium. One can often, in these cases, study at first very subtle mental reactions—euphoria, advancing to depression, to suspicion and to delusions of persecution, proceeding to the last final delirium.

Cerebral anemia is associated usually with unrest, apprehension, suspicion and delusions of persecution. I have a case of a highly cultured woman, aged 65, who has a severe disease of the heart muscle, with low blood pressure. If she remains in bed, she is of absolutely normal, even high grade normal, mentality. If she tries to get out of bed and be up and about, she develops delusions of persecution. Having a full insight into this condition of mind, for several years she has refused to get out of bed, preferring the discomfort and disadvantages of the bedridden to the horror of disturbed mentality. Here we might say we have a case of purely mechanical mental derangement, but we must keep in mind that, with such a heart, the kidney function cannot be normal, nor is it likely that the liver and other organs being deprived of a full supply of blood, can be absolutely normal in function.

In tuberculosis in which anemia exists, we must add the effect of low blood pressure, the intoxication from the tubercle bacilli, the effect of complicating pus-producing organisms as the case advances, the disturbance of the ductless glands, and, secondary to this, the effects of the derangement of function of the spleen, the kidneys, the gastro-intestinal tract and other factors. It is evident how complex is the condition with which we are dealing. We all know how a small disturbance of liver function, which we call biliousness, affects us: the feeling of mental heaviness, the slight headaches, the mental depression, and the mental clumsiness we experience. The psychiatrist realizes how chronic liver disease in the sensitized person is apt to produce a

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chronic mentally depressed state. Here, while the condition is apparently simple, we are dealing with many and complex factors. And so again in the infectious and febrile deliria and psychotic states, we are dealing with extremely complicated factors of body and blood chemistry acting on the cells of the brain, producing in the normal brain simple delirium, and, in the diseased or sensitized brain, complex mental states.

If a man drinks a pint of alcohol, it will act on his kidneys if they are normal in one way, and if damaged by previous disease in an entirely different way, and often in a varying way, depending on the nature of the bacteria or its toxins producing the previous damage.

In the intricate brain function not only does the alcohol play on the strings of this delicate instrument, but the tune produced may be one of harmony or discord, depending not only on the physical damage, but also on the many residual impressions retained in the cell memories, of all kinds of shocks and instincts and pain impressions long out of the field of consciousness of the individual. These are mixed in the confused delirious states. They are difficult to understand, unless by a detailed study in the relatively normal state, all of those past and forgotten ideas that went to make the character whole are revealed. When we take a running, moving, mental picture of the ideas formed and concealed from the threshold of thought, in infancy, to the threshold of adult life, at adolescence, and link this up to disease processes that disturb the nutrition of the growing brain and alter its structure and function, in addition to splitting, at times, the personality over sex and other matters, we gain a more complete idea of what goes to produce that derangement of function that leads to conduct disorders that are, and also at times are not, insanity but are distinctly pathologic.

Tuberculosis in infancy, taking two or more years for adjustment, arrest or cure, interferes with the nutrition of the developing brain. To this add an intoxication, chemical in nature, due to disorder of function of the heart and circulation; a catarrh of all the mucous membranes, especially of the gastro-intestinal tract; disorder of the liver function; weakness of the nutritional stream to brain and viscera by anemia, more or less marked, and a grave strain leading to exhausting defect in the ductless gland structure in its defensive fight against the chronic disease, and the result is low blood pressure, a long, lanky, flat and often deformed chest, a low faulty position of the body viscera, flatfoot, etc. The central and peripheral reflexes and reactions are exalted and sensitized. Through childhood, ill health is likely to lead to introspection and a splitting of the personality, an asocial tendency, a suspicious, querulous personality. When we come to adolescence, when the machine is changed in its main function from one of growth to one of reproduction, the faultily nourished brain is asked to stand the brunt of an intoxication from a damaged ductless gland system which, overwhelmed by its efforts for defense, is inadequate to the demands of the change forced on it, and fails in the critical position it is asked to take.

These factors, therefore, including (*a*) the physical factors, (*b*) the chemical factors, (*c*) the growth factors, (*d*) the endocrine factors, (*e*) the faulty physiologic adjustments and (*f*) the faulty environment in a given personality that has not the physical resistance and recuperative power to swing back to a relative normal, represent the moving clinical picture of a partly or fully formed adolescent psychosis.

What influence has focal infection in this process of intoxication? Can a focal infection in a tooth cause insanity or neurasthenia or psychoneurosis? In my opinion, this is highly improbable, if not impossible, in the normal person, even though he has a vicious heredity, in reference to nervous or mental disease. I am fully aware of the reasoning that a streptococcic infection from the teeth may set up a vicious inflammatory rheumatism, but here again I question whether there is not some underlying disturbance of metabolism whereby the focal infection may precipitate a carbohydrate imbalance.

When we are dealing with the neuroses and psychoses, we are face to face with an entirely different situation. Here we may not expect a simple cause to produce such a complex result as an adolescent psychosis.

In studying this subject, I have taken the facts and separated them from the theoretical considerations.

In 120 cases of psychosis, we find the weight to be deficient in thirty-eight cases; the general condition of the patient to be below par in seventy-nine cases; involvement of the thyroid gland in twenty-nine; involvement of the endocrine system in fifty-seven; lowered blood pressure states in forty-four; focal infections in the teeth in sixty-one; tonsils in eighty-seven, and old or new pulmonary lesions in sixty-three.

Merely because we find focal infections in more than 60 per cent. of these cases are we justified in assuming that the focal infection is the cause of the psychosis? I do not think we are so justified.

Are we to assume that focal infections acting on a low blood pressure state are the cause of the disturbed mental condition? I do not think so. As this is a theoretical consideration, it must be faced as a theory separated from the facts.

How are we to measure the influence of the underweight factor; the underpar condition; the frequent, old, pulmonary lesions; the visceroptosis, etc.? Certainly, when dealing with a scientific problem, we should treat it in a scientific manner; and we are not justified in selecting some factors and discarding others, or, indeed, in discarding any factor before us.

If we analyze the weight factor, we find in 50 per cent. of the cases that the patient has been underweight from childhood.

We have no definite earlier records of the arterial hypotension, but here again we may assume that this is the natural and chronic condition of the individual.

As to the conditions obtaining in the endocrine sytsem at the time of adolescence, it may be assumed that these are in all probability not inherent from early childhood. They may be developmental conditions which have arisen at the time of, or some time previous to, the acute mental disturbance.

Focal infections may or may not be chronic. Infections in the tonsils may be active through childhood and adolescent life. It is the rule rather than the exception to find in this group a history of repeated attacks of tonsillitis or quinsy. The focal infection factor may be active in its effect on the organism, or it may be passive up to a time of reduced vitality, when it may cause a physical or nervous reaction. In any given case, it is difficult, if not impossible, to trace which of these two states exists or when a latent condition becomes active.

Focal infections in the teeth and the gums are much more definite. Here, there is usually some record of

the care of the teeth. The frequency of focal infections from this source increases as life advances beyond the adolescent period. The most frequent source of infection at or preceding this time of life is found in the unerupted wisdom teeth. As life advances, permanent bridge work, neglected or poorly filled teeth and advanced pyorrhea become increasingly frequent in our statistics.

When we come to determine how focal infections act in order to produce disease conditions of the mind, we are forced to study their method of effecting disturbance of function or of producing disease of other viscera. Here again we are forced away from the facts into the realm of theory. That focal infections, when active, are associated with an endocrine reaction, more particularly in the thyroid function, will be admitted, I think by any clinician of wide experience. The favorable reaction of hyperthyroid states in the adolescent to removal of focal infections is evidence of this. We may assume, on account of the interrelationship of function and action of the various ductless glands, a reaction, to some extent, in the pituitary, at least, and probably also in the suprarenals and gonads. The effect of focal infection on the myocardial function may be direct or indirect through the pituitary-thyroid function. In 60 per cent. of the cases, we have found the myocardial function faulty. This may be considered as evidence of actual physical damage to this organ. Is it caused by the focal infection factor? Here again this problem of internal medicine has hardly even been considered by the clinicians. The same is true to a less extent of the relation of focal infection of teeth, tonsils, sinuses and gallbladder infection to the liver function; to the kidney function, secondary to the initial lesions, and of the anemic states that have been from time to time linked up with infections in the mouth and the upper respiratory area.

The best evidences we have of the effect of focal infections on the heart function are the pulse and blood pressure reactions shown in the effort test, to focal infections, and the disappearance of these phenomena when the focal infection is relieved. Cardiac arrhythmias are not infrequent in active focal infections. Subjective symptoms of palpitation (tachycardia), substernal pressure and precardial distress are not infrequent. From an analysis of the literature on these subjects, it becomes evident that the time has arrived for definite information on a subject much talked about, but with little evidence on which to base reasonable conclusions. The effect of focal infections on the kidney function, as far as I have been able to determine, is purely secondary to the cardiac reaction.

Do the focal infections act directly on the central nervous system, on the brain, in the production of mental disease? In the vast majority of cases, I think this is a minor factor, if it acts at all. There are, however, cases in which the evidence is in favor of a direct action. This is particularly true in the chorea insaniens group. A patient now under my care, a boy, aged 17, 6 feet (183 cm.) tall, weighing 130 pounds (59 kg.), had an attack of quinsy three months ago. In six weeks, he lost 30 pounds (13 kg.). For the last four weeks, he has had a well defined Sydenham's chorea with mental symptoms. The natural assumption would be to link up the chorea and mental symptoms with the focal infections, and I feel quite certain that the chorea was the direct result of the focal infection on the cerebral tissues. One might also add that the mental symptoms were the direct effect of the tonsil infection. A general physical survey revealed an old pulmonary lesion in the right upper lobe; the thyroid gland diminished in size and of increased consistency; systolic blood pressure, 100; diastolic, 60. The very marked loss of weight and strength, the old tuberculosis and the endocrine imbalance had to be considered as factors in the mental picture, and equally so in the therapy of the case. I did not think it advisable in this case to remove the tonsils for fear of precipitating a more serious mental state. An infected tooth was removed and a process of upbuilding instituted. In one month, he has gained 14 pounds (6 kg.). The chorea has almost disappeared, but the mental picture is becoming definitely fixed into an adolescent psychosis with a neurosexual splitting of the consciousness. With his general vigor improved, we are now prepared to remove the tonsils. In this case I expect a favorable result. I quote this as a type of case in which the focal infection acts both directly and indirectly on the brain tissues, already disturbed, however, by other chronic pathologic factors.

Focal infections, if severe, would act as any other continuing infection, both directly and indirectly, on the nervous system of the growing child. Most of the teeth infections and, for the most part, the tonsil infections, act on an already damaged body chemistry.

My working theory of the relationship of the focal infections to the psychoses and neuroses is as follows:

A. Severe bacterial and prolonged infections, such as tuberculosis or syphilis in childhood, causing a strain on the endocrine defense system at a time when its function is required for growth, leads to faulty nutrition throughout childhood, with underweight, low blood pressure and a sensitized nervous system.

B. When adolescence is reached, the endocrine system, whose major function was one of the control of the growth process, is now suddenly overburdened with the new function of reproduction.

If at this time, when the endocrine and nervous systems are overburdened and overstrained with the functional turnover of adolescence, a focal infection is added, for which there is no defense, the whole body chemistry is deranged, with a toxic physical and mental picture we call dementia praecox or adolescent psychosis.

I believe that in the majority of these cases, the removal of all focal infections becomes one of the most important therapeutic measures; this alone, however, is rarely sufficient and should be considered with rest, occupation, mental training, good nursing, and an effort to get a normal functioning of all the viscera.

CONCLUSIONS

1. Focal infections in the upper respiratory tract are present in a sufficiently large percentage of cases of the psychoses and neuroses to warrant the assumption of a causal relationship between the focal infections and the disease conditions of the nervous system.

2. Focal infections of and by themselves are probably the cause of the psychotic or psychoneurotic condition in only a relatively small percentage of cases.

3. In the vast majority of cases, the focal infections process acts on an already existing condition of undernutrition, anemia, endocrine imbalance, etc. Focal infections appear to produce much more marked nervous symptoms and to produce them with greater frequency in individuals with arterial hypotension than in those with normal blood pressure or an arterial hypertension. This is probably an endocrine reaction.

ABSTRACT OF DISCUSSION

DR. GEORGE M. DORRANCE, Philadelphia: It has been our practice, when we are not sure that a patient has a chronic infection of the antrum, not to trust to the nasal packing but to "take a look." In one case, which Dr. McCarthy will remember, the tonsils had been removed and the teeth were taken care of. Surely, there was nothing wrong with that antrum. Until the focal infection was removed, however, the patient did not improve. As soon as the antrum was drained, the patient immediately improved and was able to work. We have had similar experiences in three cases. One should always consider the possibility of a chronically infected antrum; if one is not sure of it, it does not do any harm to open into it. We find that practically all these patients have a dull ache over the antrum. On the question of tonsils, I agree with Dr. McCarthy. There is no doubt that chronic infection reacts largely through the liver and the kidney. There is a question at present whether one should tap the abscess at the periapical area. It is not worth while doing that when there is a psychosis. One should take the teeth out and should not try to drain the abscess.

DR. WILLIAM A. JAQUETTE, Philadelphia: I believe we cannot disagree in any instance when it is absolutely necessary to remove all possible dental foci of infection in one manner or another. Dr. McCarthy has been a little severe on members of my profession in their delinquencies, but I am sure that he has been justified in many instances. He is giving the subject attention from the highest point of view, and there are many members of my profession who are giving it the same type of serious consideration. If the dentist would give this subject sincere and scientific study, he would not disagree in the removal of those dental foci. Determination of extraction of teeth should not be in the hands of a physician but in the hands of a dentist. There is a tendency among physicians to extract all teeth with crowns and to leave next to that crown a tooth with a small filling in it. That tooth, however, may be more certainly infected than the one with the crown. Many dentists are putting crowns on vital teeth. It is not the crown that is the deciding point in the extraction of teeth. Most serious dentists believe that in critical cases, such as those outlined by Dr. McCarthy, all teeth that are even devitalized, even though there is no roentgen-ray evidence, should be removed. Dr. Dorrance said that with those teeth one should not even attempt the amputation of the root end. With that I concur.

DR. DUDLEY E. MACKEY, Bloomfield, N. J.: I have observed in the last two years more thant 3,000 cases treated through our dental department. A roentgenogram, when indicated, is made of every patient entering the Essex County Hospital for the Insane; the patient is then treated by the dentist or physician. We found that about 64 per cent. had visceroptosis; 68 per cent. showed dental defects, either one or a number of teeth being infected. About 27 per cent. showed pathologic tonsils. I do not remember the percentage of thyroids, but 17 per cent. were tuberculous, and 70 per cent. had sinuses showing abnormal conditions, with antrum and ethmoid infection predominating. In the last two months we have started a general examination of every male patient to determine the condition of the sinuses. Up to this time I have completed 100 cases. Seventy per cent. so far show abnormal conditions. Most of the cases show infection of the antrum, and a large percentage of them showed infected ethmoids. We have not had the same experience as Dr. Cotton in the removal of kinks of the colon, nor have we had the excellent results he has reported in the removal of teeth, but we have helped the patients physically by the removal of teeth and by the treatment of their physical conditions. We have not been able to determine whether the mental condition is due to dental or gastrointestinal disturbance, yet we find that improving the physical deficiencies tends to improve some patients mentally, while in others there is no change.

DR. JAMES R. CAMERON, Philadelphia: One of the big points that appealed to me was the plea for cooperation between the neurologist or the internist and the dentist. However, Dr. McCarthy must not overlook the fact that so often patients are referred to the dentist from the internist or the neurologist with a request that the teeth be extracted; there is no history of the case. If the neurologist or internist would send some kind of a history along with the patient, the dentist would appreciate what is wanted and would be willing to cooperate to the fullest extent. In hospital practice, when the dental surgeon is called into consultation, he has access to the entire medical history of the patient; he knows what the internist wants and he tries to cooperate, whereas in private practice the patient is often sent from the neurologist to the dentist, from the dentist to the extraction specialist, and the extraction specialist knows nothing about the history of the case. Closer cooperation and exchange of ideas is most essential.

DR. CARL W. WALDRON, Minneapolis: In cases in which there is a psychosis or any nervous or mental condition, it is the duty of the nervous and mental disease specialist in charge to get in touch with the dentist and talk the case over with him to assure full coopertaion. Many patients are simply sent to the dental practitioner to have their mouths looked over and put in good condition. That does not further cooperation. It is the duty of the rhinologist who finds dental infection beneath an infected sinus to get in touch with the dentist and be assured of the technic that will be carried out in taking care of that dental infection. I have wondered, after listening to Dr. McCarthy's opinions in regard to the taking care of periapical areas, whether in his locality an accurate check has been made of the various methods of handling dental infection. In the Middle West we feel that careful exposure of the parts by a modified alveolar resection, with the enucleation method of removing infection, gives much less reaction than the old-fashioned simple extraction. It has been checked up with the temperature reaction, the effect on the blood counts, and the effect on the patient's feeling and general condition. Many oral surgeons feel that it is safer to undertake careful open view surgery of the alveolar area than simple extraction and drainage. This has been my reaction, because I have yet to see any untoward results from proper oral surgical procedures. Rather than injudicious curettage, I suggest that open view operations be carried out, because they do not menace the patient from the standpoint of the spreading of streptococcic infection.

DR. D. J. MCCARTHY, Philadelphia: I limited myself to the condition about the teeth. When the question of sinus involvement is considered, I agree with Dr. Mackey. We keep in mind focal infections in the teeth, and I look for focal infections all over the body. Dr. Mackey said he found visceroptosis in 64 per cent. of the cases. That is exactly in line with the subject of my paper. I do not agree with any clinician who says that a man is born with a Botticelli figure, with the liver down and with the stomach and colon in the pelvis. I think such a child was born normal, and some infection in early childhood reduced the vitality of the growing form; when the crawling quadruped got on its feet, it was so relaxed that its organs dropped down. Visceroptosis cases are manifestations of some severe infection in early childhood that give rise to a disturbance and stress on the endocrine system. When the child comes to adolescence, and added focal infection develops, a psychosis is often precipitated. I have no quarrel with Dr. Jaquette. I did not in the slightest degree intend to reflect on the dental profession any more than on the medical profession, but I can show you films of work done by dentists that the dental profession would be ashamed of. The same thing is true of the diagnoses of the patients that come through from physicians who have bungled their work. It is not my policy to criticize, but when I see case after case of bridge work covering old infected stumps, I know that something is wrong. Very often I study the case again, and if the dentist has not done what I consider necessary, I take the patient out of his hands and put him in the hands of a dentist who will do good and complete work. Does the dentist ever say, "Tell me about your health. What diseases have you had? Have you had any attacks of tonsillitis or rheumatism? Have you had any heart disease?" Every time that I go to a dentist he sticks a mirror in my mouth, grubs around, makes a note or two, and then reaches for a drill. The dentist who will not take the history of the case is in the same position as the practitioner who prescribes for the patient without getting his history. I quite agree that in every case of importance there should be cooperation between the dentist and the physician.

CARBON DIOXID AS AN AID IN GENERAL ANESTHESIA*

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The introduction of ethylene into the field of anesthesia in the early part of 1923 by Luckhardt [1] suggested the need for an enlarged gas machine by which ethylene, nitrous oxid, oxygen, carbon dioxid and ether could be administered.[2] The work of Henderson, Haggard and Coburn [3] and White,[4] showing that carbon dioxid aids in the introduction of ether [5] as well as in its elimination, and that it is also an aid in ethylene anesthesia,[6] prompted me to include a control for carbon dioxid, thus making an apparatus of the four-control type. Some of these machines were the Gwathmey type; others were the Heidbrink type. Attachments for the ordinary gas machine were not satisfactory.

In the cases discussed here, in which the apparatus was used, carbon dioxid was shown to be an aid in gas and in gas-ether anesthesia. The tabulation of cases shows the various combinations in which carbon dioxid was used from July, 1924, to September, 1925,

Administration of Carbon Dioxid

	1924	1925
Carbon dioxid and oxygen (to resuscitate infants)	4	20
Local, carbon dioxid and oxygen	..	1
Carbon dioxid and oxygen after ether	..	1
Nitrous oxid, carbon dioxid and oxygen	..	91
Nitrous oxid, ethylene, carbon dioxid and oxygen	13	438
Nitrous oxid, carbon dioxid, oxygen and ether	..	17
Nitrous oxid, ethylene, carbon dioxid, oxygen and ether	9	245
Ethylene, carbon dioxid and oxygen	29	67
Ethylene, carbon dioxid, oxygen and ether	..	269
Local, nitrous oxid, carbon dioxid and oxygen	2	1
Local, ethylene, carbon dioxid and oxygen	..	43
Local, nitrous oxid, ethylene, carbon dioxid and oxygen	1	33
Local, ethylene, carbon dioxid, oxygen and ether	..	38
Local, nitrous oxid, ethylene, carbon dioxid, oxygen and ether	..	28
Total	58	1,292

in the Mayo Clinic. This series of cases covers almost the entire field of general surgery.

The percentages recorded are only approximate, and are calculated from the flow of the various gases through the machine. A patient, of course, cannot tolerate more than between 4 and 6 per cent. of carbon dioxid in the mixture for continuous inhalation. I have been guided in the amount by the character of the respiration, and have endeavored not to exceed an amount sufficient approximately to double the depth of respiration. In most cases, respiration was increased in depth more than in rate, according to the well recognized physiologic effects of carbon dioxid. Individual tanks of nitrous oxid, ethylene, oxygen and carbon dioxid have been used. Carbon dioxid has been used both intermittently and continuously in the induction, maintenance and termination of various anesthesias, or whenever the anesthetist wished to control the patient's respirations.

TECHNIC

For the first or induction period, the breathing bag is filled with a mixture of nitrous oxid, about 80 per cent., and oxygen, 20 per cent. The anesthetist smells the mixture to be sure that there is no unpleasant odor due to stale gas or escaping ethylene, ether or carbon dioxid. The mask is then placed over the patient's face and he breathes into and out of the bag. After from four to six breaths, the carbon dioxid is gradually added to the mixture, a flow of one or two holes on the Gwathmey machine and a flow of from 3 to 10 gallons an hour in the new Heidbrink machine being used. The breathing bag is 35 cm. in diameter, and the carbon dioxid flows about one and a half minutes to obtain the desired effect on respiration. Ethylene is then gradually added, and the nitrous oxid gradually shut off until the mixture is approximately 75 per cent. ethylene, 20 per cent. oxygen, and 5 per cent. carbon dioxid. On a Gwathmey machine, the sight feed flow is four or five holes of ethylene, two or three of oxygen and one or two of carbon dioxid. The four to six breaths of nitrous oxid and oxygen produce slight vertigo and dull the patient's sense of smell, so that the gradual addition of the ethylene is, as a rule, not unpleasant. The carbon dioxid stimulates the patient to breathe deeply of the mixture and smooths out the second stage of anesthesia. Four or five breaths of the mixture containing ethylene, as a rule, suffice to render the patient unconscious and produce light anesthesia, which rapidly becomes deeper until the third stage is established. Apparently the increase in the depth of respiration makes the anesthesia smoother and keeps the patient pinker than when carbon dioxid is not used. This is equally true whether or not a preliminary hypnotic of morphin has been employed.

In order to produce satisfactory relaxation, it is often necessary to add ether to the ethylene. Carbon dioxid has speeded up the absorption of ether and has almost entirely eliminated respiratory inhibition. The use of carbon dioxid, as a rule, reduced the quantity of ether used by about one half; the vapor was equally reduced in concentration, probably because of an increase in absorption and a decrease in waste. If carbon dioxid has not been used the patient may strain and hold his breath when the peritoneum is being incised and the exploring hand passed through the abdomen. For certain patients it is necessary to increase the percentage of carbon dioxid in the mixture at the time of the exploration. Strong concentrations, however, must be avoided. With the Gwathmey type of machine in such cases, not more than three holes of carbon dioxid are used, and with the Heidbrink type, not more than 10 or 12 gallons an hour. The increased flow of carbon dioxid, although considerable, lasts for only a minute or two, and increases the percentage inspired but slightly. When a diseased organ has been delivered into the wound, the carbon dioxid and ether are still further decreased. The machine will then be feeding approximately 75 per cent. ethylene, 20 per cent. oxygen and from 3 to 5 per cent. carbon dioxid, besides, of course, the slight amount of carbon dioxid supplied by rebreathing.

From time to time the anesthetist should open the exhaling valve and smell of the mixture in the bag.

* From the Section on Anesthesia, Mayo Clinic.
* Read before the King County Medical Society, Seattle, Sept. 21, 1925.

1. Luckhardt, A. B., and Carter, J. B.: Ethylene as a Gas Anesthetic, Preliminary Communication, J. A. M. A. **80**: 1440-1442 (May 19) 1923.
2. Lundy, J. S.: Ordinary Ethylene-Oxygen Administration, J. Iowa State M. Soc. **15**: 371-373, 1925; Anesthesia by Nitrous Oxid, Ethylene, Carbon Dioxid, and Oxygen for Dental Operations on Children, Dental Cosmos, to be published.
3. Henderson, Yandell; Haggard, H. W., and Coburn, R. C.: The Therapeutic Use of Carbon Dioxid After Anesthesia and Operation, J. A. M. A. **74**: 783-786 (March 20) 1920; Henderson, Yandell; and Scarbrough, M. M.: Acapnia and Shock. VI. Acapnia as a Factor in the Dangers of Anesthesia, Am. J. Physiol. **24**: 260-286, 1910.
4. White, J. C.: Deetherization by Means of Carbon Dioxid Inhalations, Arch. Surg. **7**: 347-370 (Sept.) 1923.
5. Haggard, H. W.: The Absorption, Distribution and Elimination of Ethyl Ether, J. Biol. Chem. **59**: 753-770 (April) 1924.
6. Henderson, Yandell: Resuscitation, J. A. M. A. **83**: 758-763 (Sept. 6) 1924.

The odor of ether in the bag should never be stronger than the anesthetist himself can tolerate, and the carbon dioxid should never be discernible. During the operative work on viscera at rest, the anesthetic mixture usually consists of ethylene and oxygen with small quantities of carbon dioxid. Before the viscera are replaced within the abdominal cavity and the abdominal wall is closed, ether may be added and the percentage of carbon dioxid raised, so that the machine shows a flow of from 5 to 7 gallons an hour (from 3 to 7 per cent.) of the total flow. If the abdominal wall has been blocked regionally with procain as part of the preoperative preparation, ether will probably not be necessary for the closure. It is not desirable to administer carbon dioxid in quantities sufficient to cause overvigorous movements of the chest and the abdomen at any time. When the patient's normal respirations have been approximately doubled in depth, the right amount of carbon dioxid is being used, and the ether may be added. After the peritoneum has been closed, nitrous oxid may be substituted for the ethylene and ether. The exhaling valve should then be opened and from 3 to 5 per cent. of carbon dioxid used. The ethylene and ether are thus gradually eliminated and replaced by nitrous oxid, and by the time the skin sutures have been placed a large amount of ether and ethylene will have been eliminated. As a rule, patients awaken a short time after the mask has been lifted from the face. Some of them vomit, but not excessively as a rule. In operations on the gallbladder, the grunt occasioned by the surgeon's pull on the organ is less noticeable when carbon dioxid is used, and sometimes it is entirely absent. In extra-abdominal operations it is often unnecessary to add ether to the gas, when carbon dioxid is used.

CARBON DIOXID IN OBSTETRICS

Carbon dioxid has proved of value for obstetric anesthesia. A mixture of nitrous oxid, about 50 per cent., and oxygen, 50 per cent., is given in the early period of pain, and when the pains become more severe the nitrous oxid is gradually increased until the mixture in the bag is from about 80 to 85 per cent. nitrous oxid and from 15 to 20 per cent. oxygen. When the pains become still more severe, ethylene is added and the nitrous oxid reduced, about 40 per cent. of nitrous oxid, 40 per cent. of ethylene, and 20 per cent. of oxygen being used. This mixture is gradually changed as the pains increase until the nitrous oxid is discontinued and the bag is filled with ethylene, about 80 per cent., and oxygen, 20 per cent. As soon as the patient gives the sign of an approaching pain, she is given four or five breaths of the mixture in the bag. Because of the intermittent administration of a few breaths at a time, some patients will require as much as 90 per cent. of ethylene and 10 per cent. of oxygen. As the baby's head presses against the perineum and begins to dilate the external outlet, some patients hold their breath and bear down in spite of all remonstrances; carbon dioxid may then be of advantage. Anesthesia is often quickly induced, and the mother prevented from holding her breath and bearing down. It is obviously not always possible to get this effect in an intermittent anesthesia.

RESUSCITATING THE NEW-BORN INFANT

If the new-born infant does not breathe well, respiration may be established quickly by the use of artificial respiration and oxygen containing 5 per cent. of carbon dioxid. The obstetrician places his hands so that his palms are against the baby's chest, the fingers point toward the head, and the baby's arms protrude between his thumb and index finger. He gently presses on the infant's chest with his thumbs. The anesthetist stands at the baby's head and places the mask snugly over its mouth and nose. As the obstetrician's thumbs rise, the oxygen and carbon dioxid are administered under slightly increased pressure so that they inflate the baby's lungs. This manipulation is, as a rule, sufficient to start respiration after it has been repeated a few times, if the air passages are clear. As the pulmonary tissue is very delicate, great caution must be used not to have the pressure exceed 3 cm. of water; this can be controlled by inserting a water safety valve.

DENTAL ANESTHESIA

In dental surgery, carbon dioxid aids in maintaining nitrous oxid or ethylene anesthesia with little struggling or cyanosis. This has been of decided advantage in dental operations on children.[3]

ADVANTAGES OF CARBON DIOXID

The advantages of using carbon dioxid during the induction and maintenance and at the termination of anesthesia are:

1. An increase in the rate of absorption of ether, when it is used alone or with other anesthetic agents, by increasing the volume of respiration.[5]
2. Low concentrations of ether vapor.
3. Reduction of struggling, breath holding and shallow breathing, and the absence of cyanosis.
4. Greater relaxation in light anesthesia.
5. The quieting effect of morphin, without its occasional bad effect on the respiratory center.
6. The starting of respiration in the new-born infant without the usual vigorous manipulations, if the air passages are clear.
7. Better prognosis if patients are moribund from operative procedures or for other reasons.
8. A lack of idiosyncrasies to low concentrations (3 per cent.).
9. Safer induction and maintenance of gas anesthesia in children.
10. The hastening of the elimination of ether and revival of the patient.[4]

INDICATIONS OF OVERDOSE

Carbon dioxid has been used in the present series of cases during induction and maintenance and at the termination of anesthesia in nearly all types of surgery. When used in moderation, it has been of assistance to the anesthetist. It is distinctly a disadvantage, however, to use it in strong concentrations. The signs of overdosage are coughing, breath holding and overvigorous abdominal and chest movements. One piece of apparatus is so constructed that it limits the quantity of carbon dioxid, but this does not make it fool-proof. It is of the utmost importance to caution the anesthetist never to use carbon dioxid in strong concentrations.

COMMENT

On several occasions, I have administered oxygen to normal persons, and have asked them to hold their breath voluntarily at intervals. I then gradually added carbon dioxid to the oxygen until they were unable to hold their breath. From these experiments it would seem that with loss of consciousness, a patient could

be made to breathe under all circumstances by administering carbon dioxid in moderate quantities. However, the throat and laryngeal reflexes usually operate regardless of the effect of carbon dioxid on the respiratory center. This protective mechanism is most noticeable with light anesthesia. The throat and laryngeal reflexes also seem to protect the patient against the inhalation of great concentrations of ether or carbon dioxid, which would, of course, be deleterious. Nevertheless, every care must be used to keep the air passages patent and free from foreign bodies and fluids.

The work of Haggard, on dogs, wherein he laid the foundation for the use of carbon dioxid with ether, should be carefully read by all who are interested in this subject. Haggard has shown that the increase in the volume of respiration caused by the inhalation of carbon dioxid hastens the absorption of ether vapor, and that anesthesia is as quickly produced when carbon dioxid is used with a low concentration of ether vapor as when a highly concentrated ether vapor is used alone. Theoretically, then, the addition of carbon dioxid would probably reduce the frequency of postoperative pneumonia, because a more dilute vapor could be used with consequent less irritation of the air passages.

PREFERENCE FOR CARBON DIOXID

The patients in this series have been anesthetized by about ten different anesthetists; all are enthusiastic in advocating the use of carbon dioxid as a means of making general anesthesia easier to induce and maintain, and are reluctant to administer an anesthetic without having carbon dioxid at hand. It is generally agreed, among those who have administered the anesthetics in this series, that when ether and carbon dioxid are added in proper amounts, either singly or together, to nitrous oxid or ethylene, the resulting anesthesia is usually satisfactory.

INVESTIGATION OF THE ACTION OF CARBON DIOXID IN GAS ANESTHESIA

Future investigation may explain how carbon dioxid assists in producing relaxation, if it actually does produce it. In certain cases, when it is used during light anesthesia, the fighting of the excitement stage is lessened or eliminated. Possibly, control of the respiratory center or breathing reflex causes struggling to disappear to some extent. Sometimes the effect of carbon dioxid during anesthesia is similar to that produced during bimanual examination when the patient is asked to breathe deeply through the mouth; under those circumstances not much relaxation is produced, but much of the tenseness is abolished. In some anesthesias it seems that carbon dioxid, by producing deep breathing, has coordinated the reflexes to such an extent that the nervous, tense patient becomes as quiet as in normal sleep. In normal sleep one is usually somewhat relaxed, yet moves and turns from time to time. It might be said that carbon dioxid, when it is functioning as desired, brings an otherwise tense patient to the relaxation of sleep, and that the anesthetic agents carry the patient on into a state of complete relaxation. Carbon dioxid, when used in proper amounts with anesthetic agents, seems to contribute definitely to the relaxation. The explanation as herein set forth is based on observation and deduction and may be erroneous; nevertheless, we have obtained good results from the use of carbon dioxid during gas anesthesia. I have frequently observed that when using carbon dioxid in gas anesthesia, even without ether, the movements, especially of the extremities, are less frequent. Some patients who are so lightly anesthetized that they will open and close their eyes when given carbon dioxid often make no other movement, even when the incision is made.

CONCLUSIONS

1. Carbon dioxid in moderate concentration assists in producing anesthesia, rendering the anesthetic apparently safer and easier to administer.

2. Carbon dioxid should be used in such concentrations as will produce optimal results, and these vary with the individual and the type and stage of the operation. Too much carbon dioxid is worse than none, and care should be exercised to prevent more than 5 per cent. being used.

3. The results thus far in a series of 1,350 cases in the Mayo Clinic are satisfactory enough to warrant further investigation by others in the use of carbon dioxid during the induction and maintenance and at the termination of ordinary general anesthesia.

HEMATOMA OCCURRING SPONTANEOUSLY IN SHEATH OF RECTUS ABDOMINIS MUSCLE

A CONSIDERATION OF ITS GYNECOLOGIC AND OBSTETRIC SIGNIFICANCE: REPORT OF TWO CASES

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Rupture of the fibers of the rectus abdominis muscle, when not due to external violence, occurs as the result of strong or unusual contraction, though in a few cases there is a record of nothing more than ordinary muscular effort. As a rule this accident carries with it laceration of the branches of the epigastric vessels, sometimes of the trunks themselves, and, as a result, a hematoma forms within the aponeurotic sheath. This condition is of surgical interest not only because it constitutes a lesion, but also because the signs and symptoms produced lead to misinterpretation in suggesting intraperitoneal disease. When the accident occurs in women, it is nearly always mistaken for some critical form of abdominal or pelvic pathologic condition. Surgical textbooks either omit the subject or refer to it briefly, and gynecologic textbooks make no reference to it. Haubold [1] refers to subcutaneous lacerations of the musculature of the abdominal wall as not rare. He states that the lesion is most likely to happen in acrobats and has occurred in persons convalescing from prolonged infectious diseases, such as typhoid fever, as a result of slight exertion. The earliest reference to the condition is that of Maydl [2] in 1882; the first American report, that of Pilcher [3] in 1913.

In 1923, Wohlgemuth [4] collected 127 cases from the literature, 107 of which had occurred in young men,

1. Haubold, H. A.: Principles and Practice of Surgery, New York, D. Appleton & Co., 1921, p. 1885.
2. Maydl: Ueber subkutane Muskel- und Sehnenzerreissungen sowie Rissfrakturen usw., Ztschr. f. Chir. **17** and **18**: 306-361, 513-547, 35-139, 1882.
3. Pilcher, L. S.: Spontaneous Rupture of the Rectus Abdominis Muscle, Brooklyn and New York, Year Book, Pilcher Hospital **3**: 14, 1913.
4. Wohlgemuth, K.: Ueber die subkutane Ruptur des M. rectus abdominis und der Art. epigastrica (Spontanes Bauchdeckenhämatom), Arch. f. klin. Chir. **122**: 649, 1923.

chiefly turners, soldiers and cavalrymen. He considered these as not strictly spontaneous ruptures, regarding extreme muscular effort as traumatic in nature; real spontaneous rupture occurred in the remaining twenty cases, seven in elderly persons and the rest in those suffering from infectious diseases, burns, chilling and the like, or during pregnancy and labor.

Commenting on the myalgia and muscular weakness so common in influenza, Cooper Cole [5] found abscess formation in some muscles, and marked degeneration was repeatedly noted in the rectus abdominis. The muscles looked gray and cooked, and flaked readily a few hours after death. Their fibers were found to be ruptured, as cleanly as if cut. Hemorrhages were frequent, usually in the lowest quarter only, occasionally throughout the length of the sheath. Klotz [6] found the same condition and regarded it as primarily a focal degeneration. He found similar foci in the pectoral, psoas, gluteus and sternomastoid muscles and suggested that this may explain certain postinfluenzal deep seated abscesses. Rost [7] has reported two cases occurring in the course of typhoid fever; Carnot [8] discussed those complicating diseases of the liver.

Other factors appearing in case reports are coughing, vomiting, straining at stool and tetanic convulsions. According to Perman,[9] the accident results from more or less violent muscular effort, abnormally strong or prolonged contraction of the rectus when riding, exercising or lifting, and in efforts to maintain balance when falling. It becomes evident from a study of the cases that rectus rupture takes place more often in amateurs taking part in athletic exercises or in military recruits, rather than in well trained and muscularly hardened athletes or soldiers. Thus, Perman cites numerous cases, reported by various writers, in which abdominal wall hematomas occurred in cavalrymen in their early training, the accident resulting from trying to maintain balance without stirrups, vaulting into the saddle from the ground, and like exercises.

As regards the cases occurring in women, of the fourteen in Perman's series, all but one were over 35 years of age, and most of them were multiparas. Rectus hematoma appears most frequently among the middle aged and elderly, and the exertion, as a rule, is much less than that required to produce it in men. Perman suggests that this is due to the fact that woman's musculature is not as strong as man's, and that the rectus becomes still further weakened by the distention of repeated pregnancies. The loss of elasticity with advancing years may be offered as another factor, and changes in the walls of the blood vessels as a third.

Hilgenreiner [10] has offered a classification of two groups: the first, traumatic, due to (*a*) direct or (*b*) indirect force, occurring chiefly in young men of sound muscles; the second, spontaneous, occurring when the muscles are weakened or atrophic, (*a*) in infections, (*b*) in pregnancy, labor or the puerperium, and (*c*) in elderly women.

As a rule, the hematoma occurs between the umbilicus and symphysis pubis, but in a few cases it has been found above the navel. It is nearly always unilateral, seven of Perman's cases involving the right rectus, five the left and one being bilateral. Of Wohlgemuth's series, forty-five were right, thirty-three left, and four bilateral. Seventy-nine were below the umbilicus and five above. The amount of blood involved varies greatly, and the symptoms produced vary proportionately in severity. A chief characteristic feature appears to be the occurrence of pain, with or without previous muscular effort, slight at first but continuous, or increasing; then, with continued activity, a sudden, sharp attack of pain, increasing even after the patient has been forced to go to bed.

A second characteristic is the suggestion of peritonitis, which accounts for the mistaken diagnosis, so frequently made, of intra-abdominal disease. Quénu has called attention to this, in reporting cases due to external violence, as "peritoneal symptoms in nonpenetrating wounds of the abdomen." As Hartmann [11] states, the symptoms of peritonitis may result from an irritation of the external surface of the peritoneum, without there being in reality the least inflammatory reaction involving the serous membrane. The same may be said also for the symptoms of pelvic hematocele. Hence, the pain and general reaction resulting from rectus sheath hematoma suggests a more serious situation than actually exists.

Differential diagnosis is rendered difficult by the added fact that there is no history of trauma and that only too often statements by the patient regarding lifting, straining, coughing, falling and the like are disregarded. Patients often ascribe illness due to intra-abdominal disease to the same apparently unimportant features.

In 1916, Andrews [12] reported three cases of rectus hematoma, in one of which the patient was pregnant. Hartmann's report of one case appeared in 1917, Emerson's [13] in 1918, Schumann's [14] in 1919 and Behan's [15] in 1920. Of these, Schumann's patient was also pregnant at the time the injury occurred. A recent comprehensive survey of the subject was that of Perman, appearing in 1922. This report cited only Behan's of the foregoing cases, and included fourteen others occurring in women, seven of which were ascribed, respectively, to Kotzaroff, Heintze, Lambrethsen, Bauereisen, Bird, Wiener and Lehman. In 1923 a case was described by Hilgenreiner and one by Wohlgemuth, the latter adding to his own two others attributed to Ehrenfest and Koerte. In the following year four cases were reported, one each by Harris,[16] Blond,[17] von Renner [18] and Whittingdale.[19] This comprises a total of twenty-seven cases of rectus hematoma occurring in women not pregnant.

A consideration of such cases as have occurred in women shows that rectus hematoma bears a strong resemblance, symptomatically, to intraperitoneal or

5. Cole, C. E. C.: The Influenza Epidemic at Bramshott in September-October, 1918, Brit. M. J. **2**: 566 (Nov. 23) 1918.
6. Klotz, cited by Harris.
7. Rost, Franz: Ueber Hämatome des M. rektus bei Typhus: Ein Nachtrag zu der Arbeit von E. Perman, Acta chir. Scandinav. **55**: 385-386, 1922.
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9. Perman, Einar: Hematoma in the Sheath of the Musculus Rectus Abdominis, Acta chir. Scandinav. **54**: 434-454 (April) 1922.
10. Hilgenreiner, H.: Die spontane Bauchdeckenhämatom des vorgerückten Lebensalters: Ein Beitrag zu Spontanruptur des M. rectus abdominis, Beitr. z. klin. Chir. **129**: 700, 1923.
11. Hartmann, H.: La rupture partielle des muscles droits de l'abdomen, Presse méd. **25**: 241 (April 26) 1917.
12. Andrews, H. R.: Three Cases of Hematoma of the Abdominal Wall, Proc. Roy. Soc. Med. (Obst. and Gynec. Sect.) **9**: 28, 1915-1916.
13. Emerson, M. L.: Rupture of Deep Epigastric Artery by Muscular Strain: Report of a Case, J. A. M. A. **70**: 1145 (April 20) 1918.
14. Schumann, E. A.: Rupture of the Deep Epigastric Artery as a Clinical Entity, with an Analysis of a Case, Am. J. Obst. **80**: 432 (Oct.) 1919.
15. Behan, R. J.: Rupture of Rectus Abdominis Muscle, Boston M. & S. J. **182**: 660 (June 24) 1920.
16. Harris, R. I.: Rupture of the Right Rectus Muscle, Simulating Appendicitis, Canad. M. A. J. **14**: 739 (Aug.) 1924.
17. Blond, K.: Ueber die sogenante Bauchdeckenhämatom des vorgerückten Lebensalters, Deutsch. Ztschr. f. Chir. **188**: 372, 1924.
18. Von Renner, S.: Ein Fall von "spontanen Bauchdeckenhämatom des vorgerückten Alters," Zentralbl. f. Chir. **51**: 380 (March 8) 1924.
19. Whittingdale, J.: Rupture of the Rectus Abdominis Muscle from Vomiting, Lancet **2**: 65 (July 12) 1924.

pelvic disease. A brief summary [20] of these cases brings out the points important in differential diagnosis.

The case coming under my observation, which has called forth this report, is as follows:

A well developed woman, aged 34, of normal weight, 125 pounds (56.7 kg.), the mother of two children, 10 and 5 years old, respectively, was accustomed to an active home and outdoor life. She gave a history of no previous illness except diphtheria eleven years previously. June 11, 1923, while driving from the tee in a game of golf, she experienced a sudden, sharp pain in the lower right abdomen. This persisted, but she finished the first nine holes, refusing to play a second round because of the pain. She did not play golf again until five days later, June 16. During the first seven holes she noticed some pain in her right side, and this was much more severe when she got a long drive with the wooden clubs. When she drove from the eighth tee she "suffered a terribly sharp pain, as if some one were cutting the right side open with a knife." The eighth and ninth holes were finished, but under great pain. While taking her shower after the game she noticed a swelling in the right side and, because of this and the pain, she sent for her physician. He was unable to attend her at once, and she went to a formal tea, where she "did nothing but try to protect her injured side from the crowd." That evening she attended a dinner party, later driving 25 miles by motor car to her home, where she arrived in partial collapse. The next day she remained in bed under the influence of stimulants and sedatives.

During the five days between the two games of golf the patient suffered chills on two different nights. Once during that week she went swimming and was able to dive three or four times without noticing pain. She entered the hospital, June 18, seven days after her first attack of pain and two days following the second attack, under the diagnosis of strangulated ovarian cyst, or tubal pregnancy. In this connection it should be stated that her menstruation had been regular, occurring every twenty-eight days, of from five to six days' duration, the last two periods having occurred, April 24 and May 25, respectively.

On examination the abdomen was flat, firm, soft and elastic, except for a somewhat indefinite mass or resistant area just above Poupart's ligament on the right side. This area was tender and painful. Vaginally, the uterus lay in retroversion, and was normal in size and freely movable. The left appendage was prolapsed, but on the right side a fixed, tender mass the size of an orange was palpable. The most notable thing about this mass was that it appeared to lie in the anterior pelvis, as if anterior to the round ligament, or, as described in the case record, behind Poupart's ligament.

The patient experienced no chills while under observation; her temperature ranged from 99.5 to 100.2 F., and the leukocyte count was 12,000. After two days' observation, an operation was performed. The skin of the abdominal wall showed no discoloration, but as soon as the subcutaneous fat was reached, an extensive ecchymosis was evident, involving the fat, aponeurosis and right rectus muscle. The structures were not only discolored but also infiltrated and swollen, and between the lower portion of the muscle and its deep fascial sheath lay several ounces of clotted blood. This was removed and revealed the muscle fibers, not divided sharply but as if shredded, and there was some separation of the muscle bundles longitudinally. This area, as it involved the muscle, extended from the symphysis for 10 cm. upward. There was no active bleeding. The ecchymosis involved the peritoneum, which, though markedly discolored, was smooth and shiny on its inner surface, and extended farther into the right round and broad ligaments. This discoloration was apparent throughout the right pelvic wall as far down as the uterosacral ligament, but stopped short of the tube, ovary and uterus by a sharp line of demarcation. The uterus and its appendages were normal.

20. Brief abstracts of the twenty-seven cases heretofore described appear in the complete paper as published in the proceedings of the American Gynecological Society, 1925.

Since the preparation of this report I have been permitted by Dr. Carl Beck to include one more case:

An Italian woman, obese, about 40 years of age, who had had six children, was suffering from a severe bronchitis. She had coughed hard for several days, when she began to experience pain in the upper right quadrant of the abdomen. Examination showed a hard, tender swelling, the size of a hen's egg. Vomiting, jaundice and constipation were absent. A diagnosis of gallbladder disease was made. An operation revealed that the mass was a hematoma in the sheath of the rectus muscle, just beneath the free edge of the ribs. There was some laceration of muscle fibers but no active bleeding. The peritoneum was not opened.

The obstetric significance of rectus hematoma is interesting. That it occurs rarely is evident, since there are but ten cases in Wohlgemuth's series. At first thought this is surprising, in view of the fact that in pregnancy the recti are more or less under tension and often diastatic. On the other hand, the patients are in the first half of life, before the tissues have become less elastic. The immediate causes, in most cases, are the same as those appearing in the nonpregnant. In Stoeckel's two cases the hemorrhage was occasioned by coughing. One patient was a quartipara in the sixth month of gestation; the other, a sextipara at term, labor not having begun.

Toft's patient, a tertipara, was 30 years old and pregnant six months. She had had bronchitis for several weeks and coughed freely at times. For three weeks there had been pain in the right lower abdomen. This suddenly became severe, and a resistant area developed to the right of the enlarged uterus. The next day there were anemia and signs of ileus. Rupture of the pregnant uterus was feared. At operation a cavity seven inches (213 cm.) long was exposed, filled with blood coagula, in the rectus sheath. The mass had ruptured intraperitoneally, with much free blood in the abdominal cavity. This is the only case reported in which the hematoma had broken through the serous coat.

The patient whose case Sjoblom reported was at the end of her pregnancy, and the accident of rupture was ascribed to no definite cause. In Mace's case the hematoma developed during pregnancy. Vogt's patient was a secundipara, 21 years of age. The hematoma was bilateral, and was discovered after spontaneous labor and ascribed to it. Lichtenstein reported a case in which, after normal labor, the rupture was discovered, correctly diagnosed and treated conservatively. The patient was a primipara, 32 years of age.

Schumann's patient, on the contrary, was a septipara, 44 years of age and obese. Strictly speaking this was not a case of spontaneous development but, because of its interesting diagnostic features, is added to the series. During the last pregnancy she sustained an injury, striking the edge of an open door heavily with the right side of the abdomen. Severe pain and disability followed, but the symptoms disappeared within a few days. Occasional attacks of pain in the right side persisted, and after labor a distinct mass was evident in the right lower quadrant. Within three months ascites developed, with dyspnea and edema of the legs. For the ascites, tapping had been done six times. A large tender mass was palpable in the right iliac fossa, but vaginal examination revealed no deep pelvic abnormalities. A provisional diagnosis was made of some rapidly growing form of generalized malignancy. After the ascitic fluid had been drained from the abdomen, no intraperitoneal disease was found. Within the substance of the rectus muscle lay a huge, old hematoma, after the removal of which the torn end of the deep epigastric artery was found. In this case the injury was due to external violence and occurred during pregnancy, but marked symptoms did not develop until after labor. It is the only case in which ascites occurred.

Andrews' report includes three cases, the second and third of which have been noted.[20] His first case was that of a woman, aged 30, who had been well previously except for acute rheumatism in adolescence. The illness occasioning the

report occurred while she was suffering from a severe cough and was propped up in bed. There was sudden pain in the right lower quadrant of the abdomen, which became increasingly severe. The patient was eight months pregnant and noticed no abdominal enlargement disproportionate to the duration of gestation. She was anemic and looked ill. The temperature was 101 F.; the pulse rate, 135, and respirations, from 28 to 36. The cough and dyspnea were severe, and urinalysis showed albumin and casts. A large, tender, dull swelling bulged into the right flank and was palpably separate from the uterine enlargement. A diagnosis was made of hydronephrosis. Thirty hours after admission, premature labor took place. The diagnosis was then changed to inflammatory ovarian cyst, and one week later, when the patient's condition had improved, an operation was undertaken. The tissues beneath the skin were ecchymotic and the swelling was found to be entirely in the abdominal wall, representing old clotted blood, filling a large space behind the rectus and extending up as far as the ribs.

Further evidence of the obstetric importance of this condition is seen in the fact that the majority of the patients not pregnant had borne children. Twelve were pregnant or recently delivered, at the time the rupture took place. Of the twenty-nine others, fifteen had had children, the parity of thirteen was not stated, and only one was set down as a nullipara.

SUMMARY

Twenty-nine of the patients were not pregnant, and twelve were pregnant or recently delivered, at the time of the rupture.

Of the twenty-nine who were not pregnant, thirteen were over 50 years of age, seven between 40 and 50, and six under 40. The ages of three were not stated.

Coughing due to bronchitis or influenza was given as the immediate causal factor in eleven cases, ordinary bodily movements in five, and unusual muscular exertion, in the form of hard work, in six. No apparent cause (muscular effort) was seen in three cases, and in two others there was a struggle to keep the balance in falling. Vomiting preceded the rupture in one patient, and in only one was participation in athletic exercise the factor.

Arteriosclerosis was a known condition in one patient, heart disease had been present in two, and hemiplegia had occurred sometime previously in one other.

Obesity was emphasized in nine of the reports, but in nineteen the constitutional build was not stated. One patient was not obese.

Fifteen of the patients had had children, most of them, several. In thirteen reports parity is not mentioned; in one only was the patient described as a nullipara.

One of the outstanding features is that of diagnosis, in most cases the true condition not being recognized prior to operation. In six cases the diagnosis was that of appendicitis; in seven, ovarian cyst with twisted pedicle; in two, appendicitis or ovarian cyst; in two, ovarian tumor, and in two, gallbladder disease. In three cases the preoperative diagnosis was not stated. In one case each the condition was thought to be mesenteric embolism, intraperitoneal disease, intestinal obstruction, abdominal hernia, desmoid tumor and ectopic pregnancy. In only three cases was rectus hematoma diagnosed, and in only two others was it suspected.

The treatment is conservative, if the hematoma is small. If the accumulation of blood is large enough to require evacuation, if it has become infected or if it has ruptured into the peritoneal cavity, operative intervention is indicated.

30 North Michigan Avenue.

INTENSITY OF HOOKWORM INFESTATION IN ALABAMA

ITS RELATIONSHIP TO RESIDENCE, OCCUPATION, AGE, SEX AND RACE *

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AND
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Hookworm infestation is one of the major public health problems of Alabama. Here the parasite has a wide distribution, for scarcely any county, town or village that has been studied has been found free of infestation. Among children of school age the incidence ranges from less than 5 per cent. in some of the larger towns to 95 per cent. in the heavily infested rural communities.

Formerly, every case of hookworm infestation has been considered hookworm disease, and the public health plan of organization has been to treat every child until he is entirely free from parasites.

Recent studies [1] have shown, however, that the important factor in hookworm disease control is not the incidence but the intensity of infestation from the point of view either of an individual or of a community. The great proportion of persons with hookworm infestation of slight degree suffer no measurable harm, and should be considered not cases of disease but carriers. Practical experience has shown that hookworm carriers should not, in fact, cannot be controlled by treatment, but can best be controlled, and eventually eliminated, by sanitation. Treatment should be used only to reduce the intensity of the infestation in actual cases of hookworm disease to an "economic cure"; i. e., to a carrier state.

This conception requires that a resurvey be made of hookworm infested areas to determine not the incidence, but the intensity, of hookworm infestation, in order that a practicable plan of hookworm control may be formulated which will be effective and economical.

The purpose of the present investigation was the determination of the intensity of hookworm infestation in Alabama. Since Alabama is similar to the whole group of south coastal plain states in climate, economic conditions, geological formation, and type and distribution of population, we hoped that the information obtained and the conclusions drawn might be of general application in these other Southern states.

METHODS OF PROCEDURE

An intensive study was first made of Covington County, in southern Alabama, which is a heavily infested area. The major portion of the work was devoted to the study of children of school age. Such an index would not be satisfactory in the tropics, where adults are more heavily infested than children, but in the southern United States the children of school age represent the most heavily infested age group. A study of the school children, therefore, does not give us a true cross section of the hookworm intensity of the Southern states, but represents a study of the most heavily infested age group.

The Willis salt flotation method was used in determining whether or not a person had hookworms. To

* Studies from the Hookworm Field Research Unit of the International Health Board of the Rockefeller Foundation, Andalusia, Ala.

1. Smillie, W. G., and Augustine, D. L.: The Effect of Varying Intensities of Hookworm Infestation on the Physical Condition of School Children, to be published.

determine the intensity of infestation, ova counts were made by the Stoll procedure on all positive stools. The children were grouped arbitrarily according to the estimated number of hookworms harbored, as follows:

Group 1, negative.
Group 2, very light infestation: from one to twenty-five worms.
Group 3, light infestation: from twenty-six to one hundred worms.
Group 4, moderate infestation: from 101 to 500 worms.
Group 5, heavy infestation: from 501 to 1,000 worms.
Group 6, very heavy infestation: from 1,001 to 3,000 worms.

Only one ova count was made on each child. A second or third ova count would have lowered the probable error of our grouping somewhat, though not to any great extent. In a previous experiment a large number of children were examined twice by the Stoll method, in November and again in February. In only a very few instances was there any variation in the grouping of those children that had received no hookworm treatment between the stool examinations.

The factors considered in relation to intensity of infestation were residence, occupation, age, sex and race.

Following the intensive study of a heavily infested area, a general survey was made of the whole state of Alabama. In this survey another factor was found to be of great importance in relation to intensity of infestation; namely, type of soil. The study of the relation of type of soil to hookworm intensity will be made the subject of a subsequent paper. In the following pages we shall discuss the relationship of each of the factors mentioned above to the degree of hookworm intensity, first in the heavily infested area of Covington County, south Alabama, and then in the state as a whole.

TABLE 1.—*Intensity of Infestation of 664 Rural and Urban White School Children in Covington County, South Alabama; All Ages (6-16 Years)*

Group	Description	Rural 444 Urban 220 Percentage of Children in Each Group	
1	No hookworms	3.6	55.9
2	Very light infestation, 1-25 hookworms	15.3	15.0
3	Light infestation, 26-100 hookworms	24.5	22.0
4	Moderate infestation, 101-500 hookworms	42.5	5.9
5	Heavy infestation, 501-1,000 hookworms	7.8	1.0
6	Very heavy infestation, 1,001-3,000 hookworms	6.3	0.0

OCCUPATION AND RESIDENCE IN RELATION TO HOOKWORM INTENSITY

The people of Alabama may be divided into two groups: first, those who live in villages and towns; and second, those who live in the rural districts and are engaged in agriculture or allied occupations. The school children have been used as the index of hookworm intensity. We have included in our urban group all school children living in even the small villages (250 or more). The rural children are those who live on scattered farms. It would be more concise to use the terms "farm children" and "village or town children."

The relative intensity of infestation of rural and urban white children in Covington County is shown in Table 1. Chart 1 presents the data of Table 1 in graphic form. The striking difference in the intensity of hookworm infestation of rural and town children in an area favorable to heavy hookworm infestation is clearly shown.

In Table 2 is given the intensity of infestation of negro children of Covington County. There is little difference in the intensity of the negro farm and village groups. In the villages and towns the negroes live in the outskirts and spend much time in the fields. There is much migration between farm and village, so that there is no real distinction between the rural and the urban child.

It will be noted from Table 2 that in Covington County, where there is a high intensity of infestation in white children, only a very small proportion of the negroes are heavily infested. This will be considered under a separate heading.

Table 3 shows that though the intensity of infestation in school children for the state as a whole is much less in Covington County, nevertheless, the relative degree of intensity in farm and village children is the same as in the heavily infested areas. The town children have either a light or no infestation, whereas a large proportion of the country children are infested, many of them having true hookworm disease. Some of the heavily infested town children have moved in from the country within two years. If these heavily infested cases were ruled out, the difference in intensity in rural and urban children would be still more striking.

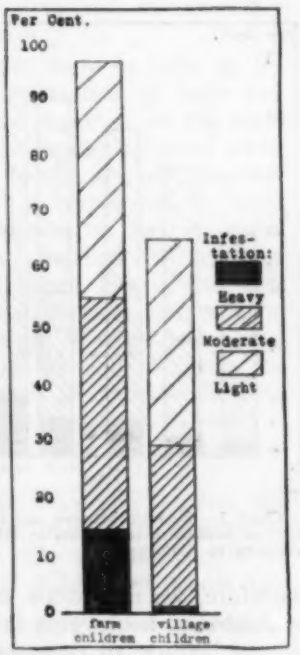

Chart 1.—Higher intensity of hookworm infestation of farm children than of village children of southern Alabama. The differentiation in shading is the same in Charts 1, 2, 3 and 5.

The towns do not have good sanitation throughout. The center of the villages may have sewerage, but more than one half of the homes have only open-back toilets. Wherever people live in close proximity, however, decency prevents a promiscuous pollution of the soil, as is the universal custom in the country, and thus village children have little opportunity to come in direct contact with infested soil.

Though the economic status of the villages is somewhat better than that of the rural districts, it is cus-

TABLE 2.—*Intensity of Hookworm Infestation in Negro Children of Covington County, South Alabama (6-16 Years)*

Group	Description	Rural 117 Urban 97 Percentage of Children in Each Group	
1	No hookworms	39.0	45.2
2	Very light infestation, 1-25 hookworms	30.9	28.3
3	Light infestation, 26-100 hookworms	20.6	18.9
4	Moderate infestation, 101-500 hookworms	8.0	3.2
5	Heavy infestation, 501-1,000 hookworms	0.9	2.0
6	Very heavy infestation, 1,001-3,000 hookworms	0.0	1.0

tomary for the children of the rich as well as those of the poor to go barefoot during the summer months, so that the wearing of shoes is not a factor in preventing infestation in the village children.

We may conclude from these tables that village and town children in Alabama have a much lower intensity of infestation than children living on the farms. Even in southern Alabama, where the soil is most favorable to development of hookworm larvae, less than 7 per cent. of the village children have an infestation greater than Group 3. Previous studies [1] have shown that these light infestations produce no measurable harm in growing children and are of little economic importance. But more than 50 per cent. of the rural children in the same area have true hookworm disease. From these tables, therefore, we may draw our first conclusion; namely, in Alabama, hookworm infestation of sufficient intensity to become an economic factor in the lives of the people is limited to persons living in the rural districts on the scattered farms. In general, persons in towns and even in small villages (250 population) do not have true hookworm disease.

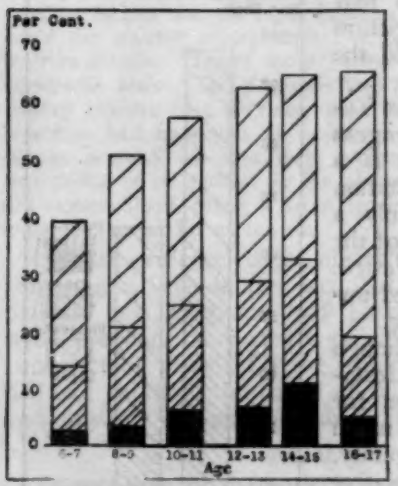

Chart 2.—Relation between age and intensity of hookworm infestation in 1,158 white children in Alabama.

AGE IN RELATION TO INTENSITY OF HOOKWORM INFESTATION

The relationship between age and intensity of hookworm infestation is shown in Table 4. This table includes white children only and represents samples taken from all parts of Alabama. Chart 2 represents Table 4 in graphic form.

TABLE 3.—*Difference of Hookworm Intensity in Farm and Village Children in Alabama as a Whole; 1,284 White Children and 555 Negro Children*

Group	Description	White: Rural Per Cent.	White: Urban Per Cent.	Colored: Rural Per Cent.	Colored: Urban Per Cent.
1	No hookworms	37.1	63.8	76.1	64.8
2	Very light infestation, 1-25 hookworms	12.6	11.9	13.8	19.1
3	Light infestation, 26-100 hookworms	16.7	17.7	6.1	10.4
4	Moderate infestation, 101-500 hookworms	26.0	5.1	3.0	4.3
5	Heavy infestation, 501-1,000 hookworms	4.1	1.0	0.3	1.2
6	Very heavy infestation, 1,001-3,000 hookworms	3.3	0.7	0.3	0.0

If we consider incidence of infestation only, Table 4 shows that 38 per cent. of the 6 to 7 year old children are infested, and that there is a gradual increase in the percentage of infested children which reaches a maximum in the oldest age group, from 16 to 17 years. If, as formerly, every case of infestation is to be considered hookworm disease, then our most serious condition would be found in the highest age group of the series.

But percentage of infestation gives us a false conception of true conditions. When we study the intensity curve and not the incidence curve, we find that only a very small proportion of 6 to 7 year old children have true hookworm disease. The intensity increases gradually year by year, but the maximum is reached not in the 16 to 17 age period but in the 14 to 15 year age period, and there occurs a rapid decline in hookworm intensity in the 16 to 17 age group.

This type of intensity curve in relation to age has the same tendency in all the groups studied. This is shown in Table 5, colored children of Alabama; Table 6, rural white children of Covington County only; Table 7, urban white children of Covington County, and Table 8, negro children of Covington County. Chart 3 is a graphic representation of Table 6 A.

TABLE 4.—*Relation Between Age and Intensity of Hookworm Infestation in 1,158 White Children of Alabama, Both Urban and Rural Groups, Showing Gradual Increase of Infestation Until About the Fourteenth Year, Followed by a Rapid Decline*

Group		Age: 6-7 Years Per Cent.	8-9 Years Per Cent.	10-11 Years Per Cent.	12-13 Years Per Cent.	14-15 Years Per Cent.	16-17 Years Per Cent.
6	Very heavy infestation	0.8	1.0	3.2	2.3	5.0	0
5	Heavy infestation	1.6	1.7	2.9	4.2	6.4	5.0
4	Moderate infestation	11.5	17.6	18.2	22.1	21.6	14.0
3	Light infestation	9.9	15.2	19.7	16.1	13.7	18.0
2	Very light infestation	14.4	14.8	13.1	17.5	18.0	28.2
1	Negatives	61.8	49.5	42.7	37.4	35.2	34.6

TABLE 5.—*Relation Between Age and Intensity of Hookworm Infestation in 555 Colored Children of Alabama, Both Urban and Rural Groups*

Intensity	Group	Age: 6-7 Years Per Cent.	8-9 Years Per Cent.	10-11 Years Per Cent.	12-13 Years Per Cent.	14-15 Years Per Cent.	16-17 Years Per Cent.
Very heavy infestation	6	0	0	7	0	0	0
Heavy infestation	5	0	0	7	0	2.2	0
Moderate infestation	4	1.4	4.7	1.5	3.3	4.5	2.7
Light infestation	3	4.3	7.5	6.0	12.4	6.7	22.0
Very light infestation	2	15.7	11.3	17.3	12.4	21.3	8.3
Negative	1	78.5	76.4	73.6	71.9	65.1	66.6

TABLE 6.—*Relation Between Age and Intensity of Infestation in White Children of Covington County Only*

A. RURAL 444 CASES

Intensity	Group	Age: 6-7 Years Per Cent.	8-9 Years Per Cent.	10-11 Years Per Cent.	12-13 Years Per Cent.	14-15 Years Per Cent.	16-17 Years Per Cent.
Very heavy infestation	6	2.4	3.1	7.8	6.9	10.6	0
Heavy infestation	5	4.8	4.2	5.0	10.0	15.0	11.7
Moderate infestation	4	39.7	46.3	41.0	47.0	37.8	26.0
Light infestation	3	20.5	27.4	30.0	19.5	19.5	26.0
Very light infestation	2	26.5	14.7	12.0	14.9	14.9	26.5
Negative	1	6.0	4.2	4.3	1.7	2.2	6.8

B. URBAN 220 CASES

Intensity	Group	Age: 6-7 Years Per Cent.	8-9 Years Per Cent.	10-11 Years Per Cent.	12-13 Years Per Cent.	14-15 Years Per Cent.	16-17 Years Per Cent.
Very heavy infestation	6	0	0	0	0	0	0
Heavy infestation	5	0	1.0	0	0	0	0
Moderate infestation	4	0	6.5	4.4	11.7	0	0
Light infestation	3	12.0	19.6	22.0	38.0	0	0
Very light infestation	2	8.0	16.3	11.9	23.5	0	0
Negative	1	79.0	55.4	61.0	26.4	100	100

Adult findings are not included in this analysis. We have made a large number of examinations of adults, and with one or two rare exceptions we have found that adults, even in a zone of heavily infested soil, have either no hookworms or at most a very light infesta-

tion. The same is true of children under 6 years of age. Light infestation in rural children below school age is common, but heavy infestation in little children is rare.

TABLE 7.—*Relation Between Age and Intensity of Infestation in 212 Colored Children of Covington County Only, Combined Rural and Urban* *

		Age					
		6-7 Years	8-9 Years	10-11 Years	12-13 Years	14-15 Years	16-17 Years
Intensity	Group	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.
Very heavy infestation.	6	0	0	0	0	0	0
Heavy infestation.....	5	0	0	1.8	2.0	6.6	0
Moderate infestation...	4	3.4	10.8	3.7	6.4	10.0	5.5
Light infestation.....	3	7.4	16.2	13.2	30.0	16.6	44.4
Very light infestation..	2	33.4	27.0	32.0	25.5	36.6	22.0
Negative	1	65.6	46.0	49.0	36.2	30.0	27.7

* Because of the small number of cases and the small difference in the intensity in rural and village children, the cases were combined in one group.

TABLE 8.—*Hookworm Incidence in Relation to Age in Brazil and Southern States of North America* *

	Average Number of Hookworms	
	Brazil Worm Counts	Alabama, Whites, Only, Stoll Ova Count Estimation
4- 5 years.....	0.5	...
6- 7 years.....	14	6.6
8- 9 years.....	26	91
10-11 years.....	85	138
12-13 years.....	169	144
14-15 years.....	159	198†
16-17 years.....	119	94
18-19 years.....	185	24
20-29 years.....	165	Very light infection only
30-39 years.....	175	Very light infection only
40-49 years.....	163	Very light infection only
50-59 years.....	64	Very light infection only

* This table illustrates two important facts: 1. Hookworm infestation is slowly acquired and slowly lost. 2. The single factor of wearing shoes may be the determining one in the intensity of hookworm infestation.
† Shoes worn from this time.

The data presented are sufficient to indicate the trend of the age curve of intensity of infestation in Alabama. In Chart 4 we have superimposed the extended intensity curve of Alabama on the intensity curve of the various age groups of Brazil. The Brazilian curve is taken from data presented in Monograph 17 of the Rockefeller Institute for Medical Research.

The two curves correspond closely until the 16-17 age period, when the Alabama curve reaches a maximum followed by a rapid decrease in intensity. The Brazilian curve reaches its maximum at about 24 years, and remains quite constant for a long period. The remarkable universal decrease of hookworm intensity in Alabama children is due to the custom of beginning the constant use of shoes at about 14 years among the whites, a little later among the negroes. No new infestation is acquired, and the old parasites gradually die out in from three to five years. This single factor of wearing shoes is in all probability largely responsible for the absence of heavy infestations in rural adults in Alabama.

These tables substantiate the general law, which was suggested to us by our Brazilian studies;[2] namely, that hookworm infestation is slowly acquired and slowly lost. Heavy hookworm infestation is not acquired in a day or following a single exposure, but is gradually accumulated over a period of years, the old worms slowly dying out and new ones being gradually acquired. As a general rule, a heavily infested case represents long and continuous exposure to infested soil. The tables also show that so simple a factor as wearing shoes, even though they may be rough and coarse, may be the determining factor between severe disease or simple light infestations.

2. Smillie, W. G.: Studies of Hookworm Infection in Brazil, Monographs of the Rockefeller Institute, No. 17, 1922.

SEX IN RELATION TO INTENSITY OF HOOKWORM INFESTATION

Our studies have shown that there is little or no difference in the intensity of infestation of boys and girls in Alabama. This is to be expected, as the sanitary habits and customs and the mode of life of rural boys and girls are similar up to the age of maturity. Our Brazilian studies showed a corresponding similarity in the intensity of infestation of the two sexes up to adult life. There was a marked difference in intensity of infestation of adults of Brazil, the men having a much heavier infestation than the women. A similar condition was noted by Warren and Carr[3] in Mexico. This difference in intensity between the sexes in adult life does not occur in Alabama because both boys and girls begin to wear shoes at about the same age, and both sexes have a very low intensity in adult life.

From the facts at hand, we may now extend our first conclusion and assert that hookworm disease as an economic burden on the life of the people of Alabama is limited to the rural children of school age.

RACE IN RELATION TO INTENSITY OF HOOKWORM INFESTATION

There is a marked difference in the intensity of hookworm infestation in the white and negro races in Alabama. The Southern states are an ideal place to make such a study, particularly the rural districts of southern Alabama, where conditions are favorable for a high intensity of infestation. Here the two races live side by side on adjoining farms, under very similar economic and sanitary conditions, yet sharply separated by racial distinctions. In Table 9 we have compared the intensity of hookworm infestation of white and negro children in six different areas in Alabama. Chart 5 is a graphic representation of Table 9. Table 10 compares the intensity of infestation of rural white and negro children of a heavily infested area. Here the same difference in the two races is noted.

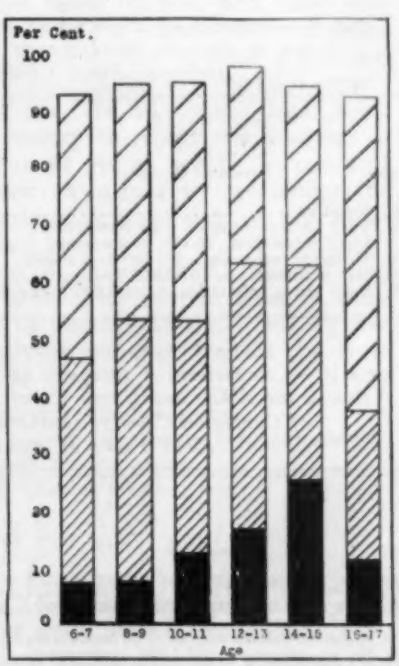

Chart 3.—Relation between age and intensity of infestation in white children in Covington County only; 444 rural children.

3. Personal communication to the authors.

Knowlton,[4] in his hookworm studies at Camp Jackson, S. C., also noted lighter hookworm infestations among the negro than white soldiers from the Carolinas and Florida, using the worm count method. Among sixty-nine white and eighteen colored cases, the average number of worms obtained from the whites was 155.3 and from the colored 38.3, which indicates an infestation about four times greater among the white than among the colored soldiers.

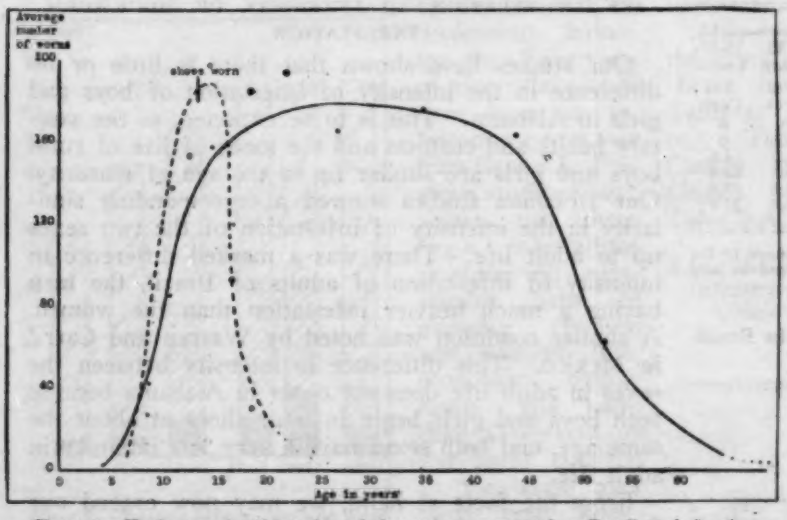

Chart 4.—Hookworm incidence in relation to age, comparing Brazil and Southern states of North America: solid line, Brazil; broken line, Southern states.

We have no explanation of the fact that negro children have a much lighter infestation than the white children. Our belief is that it is due to a physiologic difference in the two races, namely, the much greater thickness of the epidermis of the negro. Dr. Darling[3] feels that it may be due to slightly different sanitary customs. Dr. Payne[3] believes that it may be due to racial immunity. Rincon,[5] in Colombia, found a higher infestation rate in whites. His results are probably due to better social and economic status and better living condition of the whites in Colombia.

Our results show clearly that when the two races are living under almost identical conditions of sanitation, economic status, occupation, soil, temperature, etc., the whites may have a heavy infestation, whereas the negroes have a very light infestation. In fact, we have found scarcely a case of infestation in a negro in Alabama which was severe enough to produce clinical symptoms. These observations on hookworm infestation in white and negro children have suggested several lines of investigation to us, which are now being pursued.

TABLE 9.—*Intensity of Hookworm Infestation in Relation to Race in Six Different Counties in Alabama—Rural Children*

Group	Intensity Group	White, 887 Cases, Percentage of Total Cases	Negroes, 375 Cases, Percentage of Total Cases
1	Negative	37.1	79.5
2	Very light infestation, 1-25 hookworms	12.6	10.1
3	Light infestation, 26-100 hookworms	16.6	6.5
4	Moderate infestation, 101-500 hookworms	25.9	3.5
5	Heavy infestation, 501-1,000 hookworms	4.1	0.2
6	Very heavy infestation, 1,001-3,000 hookworms	3.3	0.2

TABLE 10.—*Comparison of Intensity of Hookworm Infestation in the White and Negro Rural School Children of Covington County, Southern Alabama (6-16 Years of Age)*

Group	Description	White, 444 Children, Percentage of Cases	Negroes, 117 Children, Percentage of Cases
1	Negative	3.6	39.0
2	Very light infestation, 1-25 hookworms	15.3	30.9
3	Light infestation, 26-100 hookworms	24.5	20.6
4	Moderate infestation, 101-500 hookworms	42.5	8.0
5	Heavy infestation, 501-1,000 hookworms	7.8	0.9
6	Very heavy infestation, 1,001-3,000 hookworms	6.3	0.0

COMMENT

From the evidence submitted we believe that we are justified in the conclusion that true hookworm disease as a real economic menace to the welfare of the people in Alabama is limited to the rural white children of school age. Hookworm infestation is widely distributed among all age, social, economic and racial groups. The persons with light infestations are not to be ignored, for they are hookworm carriers and are potential sources of danger to the community. They are not cases of hookworm disease, however, and should not be considered as such. If these facts are true for Alabama, they are probably also true for the other coastal plain Southern states having a similar type and distribution of population, and similar climatological and geological conditions.

This conception, if accepted, logically requires that we modify our plan of hookworm control in the Southern United States. Hookworm treatment should not be given indiscriminately to every person who shows a positive stool. It is unjustifiable and unfair to submit such a person to the discomfort of a rigorous hookworm treatment when he is harboring only a small number of hookworms which are doing him no measurable harm. It is poor public health organization to waste time and money on treatment of a community for hookworm infestation when that infestation is causing the community no economic loss.

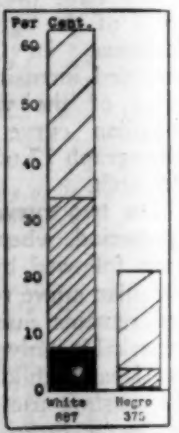

Chart 5. — Intensity of hookworm infestation in relation to color among the rural children in six different counties of Alabama.

Hookworm treatment should be employed as a weapon to combat and control true hookworm disease. It should not necessarily be pushed until all persons treated reach the point of microscopic cure. If one standard[6] treatment is given to moderately infested patients and two such treatments to those heavily infested, the group infestation will be reduced to the point of economic cure, in that the intensity of infesta-

4. Knowlton, R. H.: Hookworm Infection Among Troops: Treatment with Oil of Chenopodium, J. A. M. A. 72: 701-703 (March 8) 1919.

5. Rincon, J. D.: Anotacione sobre la anemia tropical en Colombia considerada como problema social y como entided patologica, Estudo de Tesis, Facultad de Medicina Republica de Colombia, 1924.

6. A standard hookworm treatment is considered as a treatment that will remove from 90 to 95 per cent. of all hookworms harbored, in a single administration. The effective dose of thymol, betanaphthol, oil of chenopodium, carbon tetrachlorid and ascaridol has been determined.

tion of the treated patients becomes so light that they are carriers and do not have true cases of hookworm disease.

Sanitation and education must be the chief modes of control of the carrier. Long experience by many workers has clearly shown that treatment alone is of little avail in the control of incidence of infestation in an area favorable to development of hookworm larvae.

PLAN FOR HOOKWORM CONTROL IN THE SOUTHERN UNITED STATES

The logical plan of public health procedure in hookworm control in the Southern states therefore is to:

1. Control the carrier. Proceed methodically and systematically in the education of the people in regard to the mode of hookworm infestation, and push vigorously the installation of sanitary toilets throughout the rural areas of the Southern states.

2. Limit treatment to actual cases of hookworm disease in rural white school children. This can readily be done by making an ova count estimation of intensity of infestation of rural white school children as a routine part of the regular annual or biannual examination of school children. All persons with light infestations may be advised that they are carriers but do not need treatment. Hookworm treatment need be administered only to those with moderate or heavy infestations. One standard treatment may be administered to children falling in Group 4, two treatments to those heavily infested, Groups 5 and 6.

If such a plan were followed, hookworm disease as a real menace to the people of the Southern states could readily be kept under control by the public health organizations already existing in the various states as a part of the routine procedure in the medical examination and correction of defects of school children.

This method or any other method of treatment will not reduce the incidence of infestation for any considerable period of time. Hookworms will not disappear from the Southern states until the habits and sanitary customs of the rural people are completely changed. Hookworm incidence will diminish slowly year by year as the general principles of sanitation radiate from the towns and villages to the remote rural districts. But only with the improvement of economic conditions in the rural sections of the South, and betterment in educational advantages for the rural children, will it be possible to win complete control over hookworm infestation in the Southern United States.

61 Broadway.

The Surgeon.—There is an unexplainable mental process that precedes what is known as a surgical inspiration, or to use an undergraduate's vulgarism, a surgical "hunch." This means nothing more than that after blindly puzzling and agonizing over a difficult problem in the effort to determine just what course to pursue, there is a sudden and unaccountable clearing of obscurities, and an operator enters upon his task with a conviction of just what he will encounter and just what will happen, as though he were possessed of a sixth sense. I think most surgeons are more or less conscious of this state of mental preparedness for what to others may seem a desperate throw. But there is nothing uncanny about it; it is little more than the subconscious fusion of past experience which concentration brings to bear on a given problem. And as these inspirations in difficult cases are the outgrowth of personal and repeated bedside studies of the patient whose equation also enters into them, he who neglects this portion of his work and merely operates at the behest of another misses much.—Harvey Cushing.

COMPOSITION OF IMPORTED BOTTLED WATERS *

A. E. MIX AND J. W. SALE
WASHINGTON, D. C.

During the fifteen years prior to the beginning of the World War in 1914, the annual receipts of foreign mineral waters amounted to about 3,000,000 gallons, valued at about $1,000,000. There was a marked decrease in receipts during the World War and for several years thereafter, but since 1920 there has been a gradual increase so that at the present time we are receiving about one-fourth the quantity imported prior to the World War. During the twelve months ending in June, 1924, there were imported 753,831 gallons, valued at $281,402.[1] The value of domestic waters sold annually during the last twenty-five years has remained about the same, that is, in the neighborhood of $5,000,000, so that possibly the value of imported waters may in the course of time rise to the former figure of $1,000,000 annually.

In a study of the composition of a large number of mineral waters, it is necessary to classify or group them according to the kind and quantity of dissolved mineral matter contained in them. A number of elaborate and no doubt excellent scientific systems of classification have been devised and are used to a limited extent, but none of them seemed to be suited to our present purpose, which is to classify the mineral waters imported into the United States in a manner which will be readily understood by physicians and others who have not been trained to interpret water analyses expressed in the form of acid and basic ions. It should not be inferred that we do not approve of classification of waters based on acid and basic ions or radicals, but it has been our experience in connection with the enforcement of the Federal Food and Drugs Act that such classifications are not well understood except by chemists. In all of our legal work we have found it necessary to report our analyses in grains per U. S. gallon or grains per U. S. quart of salts, which have been calculated by combining the acid and basic ions according to a definite procedure which will be described later.

In our examination of hundreds of foreign and domestic waters, we have observed that most of them can be placed in one or another of the following five classes, when the analyses are expressed in the form of salts:

Class 1. Dolomitic limestone predominating.
Class 2. Vichy type, sodium bicarbonate predominating.
Class 3. Sodium chlorid predominating.
Class 4. Epsom and Glauber's salts, one or both predominating.
Class 5. Chalybeate or iron type.

The names of these five classes indicate quite clearly the general character of the mineral waters placed in them, but they do not show the approximate quantity of the dissolved mineral matter in a given quantity of the water. Therefore, the five classes described above have been further subdivided into (A) those waters which contain less than 1,000 mg. per liter (or less than 58 grains per U. S. gallon); (B) from 1,000 to 5,000 mg. per liter (or from 58 to 292 grains per U. S. gallon); (C) from 5,000 to 10,000 mg. per liter

* From the Water and Beverage Laboratory, Bureau of Chemistry, U. S. Department of Agriculture.

1. Monthly Summary of Foreign Commerce, Part 1, June, 1924.

(or from 292 to 584 grains per U. S. gallon); (D) from 10,000 to 20,000 mg. per liter (or from 584 to 1,168 grains per U. S. gallon); (E) over 20,000 mg. per liter (or over 1,168 grains per U. S. gallon).

In further explanation of the five classes enumerated above, we might point out that the mineral matter in the waters in Class 1 consists chiefly of limestone (calcium carbonate) or of dolomitic limestone (calcium, magnesium carbonate) held in solution by carbon dioxid, which is usually present in sufficient quantity to prevent precipitation, especially when the bottles are kept closed. Waters of this class are usually rather lightly mineralized and are quite generally employed whenever light, mildly alkaline waters are indicated.

Class 2 comprises the Vichy type of waters, in which bicarbonate of soda is the predominating mineral constituent. They usually contain also a considerable amount of sodium chlorid, together with smaller amounts of a great variety of other salts.

Class 3 consists of waters in which sodium chlorid predominates. Some of the waters in this class, like those in Class 4, are very highly mineralized.

Class 4 comprises those waters in which the dissolved mineral matter consists chiefly of Epsom and Glauber's salts. They are frequently called bitter waters.

Class 5 consists of waters that contain substantial amounts of iron salts. We have included in this class all of those waters which contain 10 mg. or more per liter (or $^{58}/_{100}$ grain or more per U. S. gallon) of iron salts. These waters are termed chalybeate or red waters. The iron is present usually as ferrous bicarbonate and is held in solution by carbon dioxid. When the carbon dioxid escapes, the iron precipitates in the form of ferric oxid. In order to keep bottled waters of this type clear and sparkling it is necessary to bottle them with an abundance of carbon dioxid and to exclude carefully all traces of oxygen.

We have given no consideration to content of radioactivity, for the reason that we have never examined a natural water which contained more than infinitesimal amounts of radium.[2] Also, we have given no consideration to the presence of traces of iodin, bromin, barium and arsenic, which are present in a limited number of the more highly mineralized waters.

The principal acid and basic ions of the mineral waters which are classified in this report have all been combined according to the procedure recommended by the Association of Official Agricultural Chemists,[3] which in part is as follows: Assign sodium, magnesium, calcium and iron in the order given, to the acid ions in the following order: chlorid, sulphate, carbonate and bicarbonate. Therefore, the analyses of these mineral waters are comparable with one another, and subject to classification. These waters have all been analyzed in the Water and Beverage Laboratory of the Bureau of Chemistry, the samples having been collected over a period of years from shipments offered for entry into the United States.

A list of all foreign waters analyzed by the Bureau of Chemistry since the beginning of the enforcement of the federal Food and Drugs Act in 1907, classified in the manner described above, is set forth below.

2. Skinner, W. W., and Sale, J. W.: Radioactivity of Miscellaneous Waters Examined in the Bureau of Chemistry, J. Indust. and Engin. Chem. **14**: 949 (Oct.) 1922.
3. J. A. Off. Agric. Chemists **5**: 385, 1922.

IMPORTED MINERAL WATERS CLASSIFIED ACCORDING TO CHEMICAL COMPOSITION

CLASS 1.—*Dolomitic Limestone Type* (predominating constituents being the bicarbonates of calcium and magnesium)

A. Total dissolved mineral matter less than 1,000 mg. per liter (or less than 58 grains per U. S. gallon).

Borgofranco	Ivrea, Italy
Brambacher (Shiller) (also Class 5 A)	Brambach, Germany
Cachat (Evian)	Evian-les-Bains, France
Corallo	Leghorn, Italy
Corticello	Bologna, Italy
Deux Reines	Aix-les-Bains, France
Excelsiorquelle (also Class 5 A)	Bohemia, Czechoslovakia
Fiuggi	Rome, Italy
Graus	Barcelona, Spain
Harzer Königsbrunnen (also Class 5 A)	Goslar, Germany
Harzer Sauerbrun Grauhof (also Class 4 A)	Goslar, Germany
Harzer Victoria	Goslar, Germany
Hirone	Osaka, Japan
La Cotorra	Havana, Cuba
La Francesca	Rionero, Italy
Lourdes	Lourdes, France
Monopole (de la Ville)	——, Belgium
Monticchio Gaudianello	Potenza, Italy
Neudorfer (Duke of Beaufort)	Carlsbad, Czechoslovakia
Nocera Umbra Angelica	Nocera Umbra, Italy
Pejo (also Class 5 A)	Trentino, Italy
Perrier	Vergeze, France
San Miguel, La Salud	Azores, Portugal
Solares (also Class 3 A)	Madrid, Spain
St. Simon (also Class 2 A)	Aix-les-Bains, France
Wernarzer	Brückenau, Germany

B. Total dissolved mineral matter from 1,000 to 5,000 mg. per liter (or from 58 to 292 grains per U. S. gallon).

Ausonia (Bognanco)	Domodossola, Italy
Badoit	St. Galmier (Loire), France
Cambrunnen	Hamburg, Germany
Castellammare di Stabia	Castellammare di Stabia, Italy
Claudia	Rome, Italy
Eptinger	Eptingen, Switzerland
Ferrarelle	Riardo (Caserta), Italy
Flavia	Fiume, Italy
Godesberger (also Class 2 B)	Godesberg, Germany
Hersfelder Lullusbrunnen	Hersfeld, Germany
Hollandia (also Class 3 B)	Haarlem, Netherlands
Italiana (Elena)	Rionero, Italy
L'Insuperabile (Three Star) (also Class 2 B)	Rionero, Italy
Maternidad (also Class 4 B)	Havana, Cuba
Minerva (also Class 3 B)	Naples, Italy
Montecatini Tettucio (also Class 3 B)	Montecatini (Lucca), Italy
Montecatini Torretta (also Class 3 B)	Montecatini (Lucca), Italy
Monticchio (S. Maria de Luco)	Potenza, Italy
Neuselters (also Class 3 B)	Nassau, Germany
Orezza (also Class 5 B)	Corsica, France
Paradiso	Arezzo, Italy
Pliniana	Caserta, Italy
Polenai (also Class 2 B)	Czechoslovakia (formerly Szolyva, Austria-Hungary)
Radeiner Heilquelle (also Class 2 B)	Steiermark, Austria
Roccallaura (also Class 4 B)	Barcelona, Spain
Rudolfsquelle (also Class 5 B)	Czechoslovakia

Salvatore .....Caserta, Italy
Salvator .....Eperjes, Czechoslovakia
Sangemini .....Naples, Italy
San Hilario Sacalm.....Gerona, Spain
Santos (also Class 5 B).....Brzvany u Loun, Czechoslovakia
Sodener Warmbrunnen III....Taunus, Germany
Telese .....Solopaca, Italy
Traficante .....Rionero, Italy
Uliveto .....Pisa, Italy
Verniere .....Lamalou-les-Bains (Herault), France
Vitolo Salerno.....Salerno, Italy
Vittel, Source Grand.....Vosges, France
Vittel, Source Hepar.....Vosges, France
Vittel, Source Salee.....Vosges, France
Weinbrunnen (also Class 5 B) .....Langenschwalb, Germany
Wildunger-Königsquelle .....Wildungen, Germany
Wildungen-Helenen Quelle (also Class 3 B).....Wildungen, Germany
Wildungen-Georg Victor Quelle .....Wildungen, Germany

CLASS 2.—*Vichy Type* (predominating constituents, bicarbonate of sodium with more or less chlorid of sodium, etc.)

A. Total dissolved mineral matter less than 1,000 mg. per liter (or less than 58 grains per U. S. gallon).

Borines .....Barcelona, Spain
Caxambu (Empreza).....Geraes, Brazil
Neuenahrer Sprudel.....Neuenahr, Germany
Plombieres (also Class 4 A)...Plombieres, France
Porla (also Class 5 A).....Laxa, Sweden
Ramlosa .....Ramlosa Brunn, Sweden
St. Simon (also Class 1 A)...Aix-les-Bains, France
Teplitz .....Bohemia, Czechoslovakia

B. Total dissolved mineral matter from 1,000 to 5,000 mg. per liter (or from 58 to 292 grains per U. S. gallon).

Apollinaris .....Neuenahr, Germany
Arienheller .....Rheinbrohl, Germany
Bilin .....Bilin, Czechoslovakia
Brault .....Sail-sous-Couzan (Loire), France
Bullidors Els.....Barcelona, Spain
Cabrierora .....Orense, Spain
Ems Kranchen.....Ems, Germany
Espido (Fuente Nueva de Verin) .....Verin, Spain
Fachingen .....Nassau, Germany
Fonte Italiana.....Rionero, Italy
Franzens (also Classes 4 B and 5 B) .....Franzensbad, Czechoslovakia
Glashager .....Doberan, Germany
Godesberger (also Class 1 B)..Godesberg, Germany
Imperial Honningen (also Class 3 B).....Coblenz, Germany
Kaiserbrunnen (also Class 3 B) .....Offenbach, Germany
Klösterle Sauerbrunn.....Bohemia, Czechoslovakia
La Bourboule Choussy (also Class 3 B).....Puy-de-Dome, France
La Bourboule Perriere (also Class 3 B).....Puy-de-Dome, France
L'Insuperabile (Three Star) (also Class 1 B).....Rionero, Italy
Mattoni's Gieshubler Sauerbrunnen ... ...Bohemia, Czechoslovakia
Mondariz .....Mondariz, Spain
Monteverdi .....Siena, Italy
Pedras Salgadas.....Rio de Janeiro, Brazil
Polenai (also Class 1 B).....Czechoslovakia (formerly Szolyva, Austria-Hungary)
Radeiner Königsquelle.....Steiermark, Austria
Radeiner Heilquelle (also Class 1 B).....Steiermark, Austria
Rhenser (also Classes 3 B and 5 B).....Rhens, Germany
Radiovka .....Bohemia, Czechoslovakia
Rocafort .....Lerida, Spain
Sabroso .....Vidago, Portugal
Saint Mart (also Classes 3 B and 5 B).....Royat, France
Salus Vidago.....Vidago, Portugal
Salzbrunnen Oberbrunnen.....Silesia, Czechoslovakia
Stahlquelle Franzensbad (also Class 5 B).....Bohemia, Czechoslovakia
Vichy Andreau .....Vichy, France
Vichy Catalan .....Vichy, France
Vichy Dubois .....Vichy, France
Vichy Grande Grille.....Vichy, France
Vichy Grande Source.....Vichy, France
Vichy Lardy .....Vichy, France
Victoria Oberlanstein.....Ems, Germany
Vidago .....Vidago, Portugal
Vilajuiga .....Gerona, Spain
Villaza .....Orense, Spain

C. Total dissolved mineral matter from 5,000 to 10,000 mg. per liter (or from 292 to 584 grains per U. S. gallon).

Bikszadi .....Bikszad, Roumania
Ciappazzi .....Messina, Italy
Maria (also Class 5 C).....Szatmar Nemeti, Roumania
Margit (also Class 5 C).....Czechoslovakia (formerly Szolyva, Austria-Hungary)
Polenai (also Class 1 B).....Czechoslovakia (formerly Szolyva, Austria-Hungary)
Radeiner (Giselaquelle).....Steiermark, Austria
Radeiner Heilquelle (also Class 1 B).....Steiermark, Austria
Saint Stephans (Woda Stefana) (also Classes 3 C and 5 C) .....Dunajec, Poland
Saint Rosalia.....Formerly Gabernik-Celje, Jugoslavia
San Leopoldo (also Class 4 C) .....Montecatini (Lucca), Italy
Szolyvai .....Czechoslovakia (formerly Szolyva, Austria-Hungary)
Vals Perle No. 3 (also Class 5 C) .....Vals-les-Bains, France
Vichy Celestins .....Vichy, France
Vichy Chalet .....Vichy, France
Vichy Chomel .....Vichy, France
Vichy Clement .....Vichy, France
Vichy Desiree (also Class 4 C) .....Vichy, France
Vichy Etoiles .....Vichy, France
Vichy Hopital .....Vichy, France
Vichy La Reconstituante.....Vichy, France
Vichy Richelieu .....Vichy, France
Vichy St. Louis.....Vichy, France
Vichy Vercingetorix .....Vichy, France

CLASS 3.—*Sodium Chlorid Type* (predominating constituent is chlorid of sodium)

A. Total dissolved mineral matter less than 1,000 mg. per liter (or less than 58 grains per U. S. gallon).

Minville (also Class 4 A).....Bayonne, France
Montecatini Rinfresco.....Montecatini (Lucca), Italy
Solares (also Class 1 A).....Madrid, Spain

B. Total dissolved mineral matter from 1,000 to 5,000 mg. per liter (or from 58 to 292 grains per U. S. gallon).

Acqua Acidula.....Naples, Italy
Hollandia (also Class 1 B)....Haarlem, Netherlands
Imperial Honningen (also Class 2 B).....Coblenz, Germany
Kaiserbrunnen (also Class 2 B) .....Offenbach, Germany
La Bourboule Choussy (also Class 2 B).....Puy-de-Dome, France

La Bourboule Perriere (also Class 2 B)..... Puy-de-Dome, France
Loosequelle ..... Bohemia, Czechoslovakia
Loutraki ..... Loutraki, Greece
Minerva (also Class 1 B)..... Naples, Italy
Mirtina (also Classes 4 B and 5 B)..... Isola, Ischia, Italy
Montecatini Tettucio (also Class 1 B)..... Montecatini (Lucca), Italy
Montecatini Torretta (also Class 1 B)..... Montecatini (Lucca), Italy
Monticchio, Santa Maria..... Potenza, Italy
Neuselters (also Class 1 B)... Nassau, Germany
Rhenser (also Classes 2 B and 5 B)..... Rhens, Germany
Saint Mart (also Classes 2 B and 5 B)..... Royat, France
Salina (also Class 4 B)..... Belfast, Ireland
Wildegg ..... Wildegg, Switzerland
Wildungen-Helenen Quelle (also Class 1 B)..... Wildungen, Germany

C. Total dissolved mineral matter from 5,000 to 10,000 mg. per liter (or from 292 to 584 grains per U. S. gallon).

Cestona ..... Guipuzcoa, Spain
Corallo (Aqua Santa)..... Sciacca, Italy
Ferrata ..... Sciacca, Italy
Kissingen (Rakoczy)..... Kissingen, Germany
Maria (also Class 2 C)..... Szatmar Nemeti, Roumania
Saint Stephans (Woda Stefana) (also Classes 2 C and 5 C) ..... Dunajec, Poland
Sodener Warmbrunnen III.... Taunus, Germany

D. Total dissolved mineral matter from 10,000 to 20,000 mg. per liter (or from 584 to 1,168 grains per U. S. gallon).

Calcium-Sen ..... Fukuoka Kyushu, Japan
Karlsquelle ..... Bohemia, Czechoslovakia
Kreutznacher ..... Kreuznach, Germany
Maxquelle (Arsenwasser) (also Class 5 D)..... Dürkheim, Germany
Molinelli ..... Sciacca, Italy
Montecatini Regina..... Montecatini (Lucca), Italy
Montecatini Tamerici..... Montecatini (Lucca), Italy
Mühlbrunnen (also Class 4 D) ..... Bohemia, Czechoslovakia
Sophienquelle ..... Salzufleu, Germany

E. Total dissolved mineral matter over 20,000 mg. per liter (or over 1,168 grains per U. S. gallon).

Friedrichshaller (Bitter Wasser) (also Class 4 E)..... Saxe-Meiningen, Germany
Karlsquelle (also Class 4 E).. Württemberg, Germany
Mira (also Class 4 E)..... Jaszkarajeno, Hungary
Rio Salzo (Iodo-Arsenicale).. Bertinoro, Italy
Vittoria (also Class 4 E)..... Leghorn, Italy

CLASS 4.—*Glauber's and Epsom Salts Type* (predominating constituents, sulphates of sodium and magnesium)

A. Total dissolved mineral matter less than 1,000 mg. per liter (or less than 58 grains per U. S. gallon).

Harzer Sauerbrun Grauhof (also Class 1 A)..... Goslar, Germany
Lauchstädter ..... Merseburg, Germany
Minville (also Class 3 A)..... Bayonne, France
Plombieres (also Class 2 A).. Plombieres, France
St. Colomban..... Bains-les-Bains, France

B. Total dissolved mineral matter from 1,000 to 5,000 mg. per liter (or from 58 to 292 grains per U. S. gallon).

Franzens (also Classes 2 B and 5 B)..... Franzensbad, Czechoslovakia
Fratta ..... Bertinoro, Italy
Litiosa ..... San Marco, Italy
Maternidad (also Class 1 B).. Havana, Cuba
Mirtina (also Classes 3 B and 5 B) ..... Isola, Ischia, Italy
Natalie ..... Franzensbad, Czechoslovakia
Neu-Quelle (also Class 5 B).. Franzensbad, Czechoslovakia
Rocallaura (also Class 1 B)... Barcelona, Spain
Salina (also Class 3 B)..... Belfast, Ireland
Salmiere ..... Rocamadour, France

C. Total dissolved mineral matter from 5,000 to 10,000 mg. per liter (or from 292 to 584 grains per U. S. gallon).

Carlsbad ..... Carlsbad, Czechoslovakia
Civillina (Ferro-Arsenicale) (also Class 5 C)..... Schio, Italy
Vichy Genereuse..... Vichy, France
Vichy Desiree..... Vichy, France
San Leopoldo (also Class 2 C) ..... Bohemia, Czechoslovakia

D. Total dissolved mineral matter from 10,000 to 20,000 mg. per liter (or from 584 to 1,168 grains per U. S. gallon).

Fratta ..... Bertinoro, Italy
Mühlbrunnen ..... Bohemia, Czechoslovakia

E. Total dissolved mineral matter over 20,000 mg. per liter (or over 1,168 grains per U. S. gallon).

Apenta (also Class 5 E)..... Budapest, Hungary
Aquaperia ..... Harrogate, England
Birmenstorf ..... Canton Aargau, Switzerland
Carabana ..... Carabana, Spain
Condal ..... Lerida, Spain
Franz Josef..... Budapest, Hungary
Friedrichshaller (Bitter Wasser) (also Class 3 E)..... Saxe-Meiningen, Germany
Gioconda ..... Milan, Italy
Glaubersquelle IV..... Franzensbad, Czechoslovakia
Hercules ..... Budapest, Hungary
Hunyadi Janos..... Budapest, Hungary
Igmandi ..... Komorn, Hungary
Karlsquelle (also Class 3 E).. Württemburg, Germany
La Margarita ..... Courmayer, Italy
Mira (also Class 3 E)..... Jaszkarajeno, Hungary
Montecatini Regia (also Class 5 E)..... Montecatini (Lucca), Italy
Montmirail ..... Vaucluse, France
Penegallo (Loeches) (also Class 5 E)..... Madrid, Spain
Purgos ..... Vichy, France
Rubinat (Dr. Llorach)..... Lerida, Spain
Saratica ..... Austerlitz, Germany
Sila ..... Catanzaro, Italy
Villacabras ..... Madrid (Province), Spain
Vittoria (also Class 3 E)..... Leghorn, Italy

CLASS 5.—*Iron and Chalybeate Waters* (waters in which bicarbonate of iron is a characteristic constituent)

A. Total dissolved mineral matter less than 1,000 mg. per liter (or less than 58 grains per U. S. gallon).

Brambacher (Schiller) (also Class 1 A)..... Brambach, Germany
Excelsiorquelle (also Class 1 A) ..... Bohemia, Czechoslovakia
Harzer Königsbrunnen (also Class 1 A)..... Goslar, Germany
Pejo (also Class 1 A)..... Trentino, Italy
Porla (also Class 2 A)..... Laxa, Sweden

B. Total dissolved mineral matter from 1,000 to 5,000 mg. per liter (or from 58 to 292 grains per U. S. gallon).

Franzens (also Classes 2 B and 4 B)..... Franzensbad, Czechoslovakia
Mirtina (also Classes 3 B and 4 B) ..... Isola, Ishia, Italy
Neu-Quelle (also Class 4 B).. Franzensbad, Czechoslovakia
Orezza (also Class 1 B)..... Corsica, France
Rhenser (also Classes 2 B and 3 B)..... Rhens, Germany
Rudolfsquelle (also Class 1 B) ..... Bohemia, Czechoslovakia
Santos (also Class 1 B)..... Brzvany u. Loun, Czechoslovakia

Sodener Warmbrunnen II (also Class 1 B).....Taunus, Germany
Stahlquelle Franzensbad (also Class 2 B).....Bohemia, Czechoslovakia
St. Mart (also Classes 2 B and 3 B).....Royat, France
Weinbrunnen (also Class 1 B).....Langenschwalb, Germany

C. Total dissolved mineral matter from 5,000 to 10,000 mg. per liter (or from 292 to 584 grains per U. S. gallon).

Civillina (Ferro Arsenicale) (also Class 4 C).....Schio, Italy
Margit (also Class 2 C).....Czechoslovakia (formerly Szolyva, Austria-Hungary)
Saint Stephans (Woda Stefana) (also Classes 2 C and 3 C).....Dunajec, Poland
Vals Perle No. 3 (also Class 2 C).....Vals-les-Bains, France

D. Total dissolved mineral matter from 10,000 to 20,000 mg. per liter (or from 584 to 1,168 grains per U. S. gallon).

Maxquelle (Arsenwasser) (also Class 3 D).....Dürkheim, Germany

E. Total dissolved mineral matter over 20,000 mg. per liter (or over 1,168 grains per U. S. gallon).

Apenta (also Class 4 E).....Budapest, Hungary
Montecatini Regia (also Class 4 E).....Montecatini (Lucca), Italy
Penagallo (also Class 4 E)....Madrid, Spain

FURUNCLE OF THE NOSE

REPORT OF A CASE RESULTING IN SEPTICEMIA, TREATED SUCCESSFULLY BY INJECTIONS OF MERCUROCHROME *

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NEW YORK

Dr. Harris P. Mosher's [1] paper of a year ago on unsolved problems in otolaryngology was stimulating in the extreme and contained many valuable observations. Among the unsolved topics which Dr. Mosher did not mention, there is one which, although seemingly inconsequential, is apt to be followed by such serious complications that it deserves to be included among the rest. I refer to furuncle of the nose. The literature on this common infection is surprisingly meager; indeed, I am acquainted with only one paper on the subject, that by Dr. Lee M. Hurd.[2]

During the past winter, we have had under our care a young girl who, as the result of a nasal furuncle, developed general septicemia.

REPORT OF CASE

M., a girl, aged 15, was admitted to the Post-Graduate Hospital, Oct. 15, 1924, for a swelling on the right side of the face which started as a pimple in the nose on that side. This was incised by the physician, who was called in five days previous to admission. Her condition rapidly became worse, the swelling involving the entire side of the face and the upper and lower eyelids. Intense pain accompanied the swelling. On admission, the temperature was 105 F., pulse 130, and respiration, 30. Examination at that time showed an abscess of the lower lid with a normal fundus oculi. Six days later, October 21, a systolic murmur was detected at the apex; a moderate number of râles were heard throughout the chest, and a friction pleuritic rub was heard over the left side of the chest, posteriorly. Based on this, a diagnosis was made by the consulting internist of "pleurisy and of possible beginning pneumonia. Prognosis, not good." Two days later, October 23, a patch was detected in the left lower lobe.

Immediately on admission, the nose and cheek were explored. Through the opening previously made in the right ala, a small amount of pus was evacuated and a gauze drain inserted. At the time of admission, the blood culture was negative and remained so for nine days. October 27, twelve days after admission, a staphylococcemia was demonstrated: red blood corpuscles, 4,100,000; white blood corpuscles, 14,000; differential, 86 per cent. The fundus continued clear with no signs of meningitis and no exophthalmos. The day after admission, the temperature rose to 106, and in the next two weeks was exceedingly high, never falling below 104 the first week and 103 the second week. Abscesses developed below and above the outside of the orbit, requiring incision and drainage. October 17, 800 c.c. of blood from an immunized donor was given. Two days later, 26 c.c. of a 1 per cent. solution of mercurochrome-220 soluble was administered. This was repeated at intervals of two or three days, altogether four times. The temperature slowly fell until December 6, seven weeks after admission, it was 100 by rectum. During this time, the pulse remained steadily high, never falling below 130 and often reaching 150 and 160.

Three weeks after admission, the left ankle began to pain and swell. Cold applications caused the swelling to subside. Following the first administration of the mercurochrome, there was improvement in the general condition with a negative blood examination each time. A second transfusion of 800 c.c. was given eight days after the first. The patient was discharged from the hospital, convalescent, December 9. One month later, she returned, stating that she was still very weak and recently had been having headaches and nausea. Examination with regard to the temperature, blood and nose was negative, but a pronounced anemia was found. The case was not regarded as a surgical one, and the patient was transferred to the medical ward, where a low order of meningitis was suspected. She left the hospital after two weeks, somewhat improved.

COMMENT

This case is instructive on a number of accounts. First, because of the etiology—an innocent appearing pimple in the nose of a healthy young girl following an incision on the third day gave rise to a swelling which extended to the cheek and eye, accompanied by high fever. There were numerous foci of suppuration with staphylococcus infection of the blood, septic pneumonia and endocarditis, with recovery at the end of two months. Except for the fortunate recovery, the history of the case is not unusual although while cases occur undoubtedly with much frequency, accurate reports are lacking in the literature. The match that sets fire to the conflagration sometimes is the opening of the furuncle by a physician, as in this case. At other times no incision has been made, but the patient has picked off the scab with his dirty fingernail and squeezed out the contents of the furuncle. This was the history in a case of cavernous sinus thrombosis which Dr. Herzig [3] reported recently, and also of a similar case reported by Dr. Heller.[4] Dr. Heller also reported a fatal case of cavernous sinus thrombosis following a furuncle of the right ala nasi in which no incision had been made and treatment consisted only of hot applications.

The usual outcome is the fatal one which occurred in the cases of Dr. Heller and Dr. Herzig. The all important question is the reason for this. Incising furuncles or picking them open under septic conditions

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* Read before the Thirty-First Annual Meeting of the American Laryngological, Rhinological and Otological Society, Atlantic City, N. J., May 23, 1925.

1. Mosher, H. P.: Unsolved Problems in Oto-Laryngology, Tr. Laryngol., Rhinol. & Otol. Soc., 1924, p. 354.

2. Hurd, L. M.: Acute Infections in the Sebaceous Glands and Hair Follicles of the Nasal Vestibule, M. Rec. **101**: 105 (Jan. 21) 1922.

3. Herzig, A. J.: Personal communication to the author.

4. Heller, I. M.: Personal communication to the author.

elsewhere in the body is not wont to be followed by such alarming consequences. While the infection usually is staphylococcic, it is not invariably so. Cases have been reported in which the organism was a streptococcus. There must be some explanation for this introduction into the system of pathogenic bacteria. The blood drainage of the nose in this area is through the facial vein. This connects, by means of the angular vein, with the ophthalmic veins of which there are two, the superior and the inferior. At the inner angle of the orbit, the superior ophthalmic is wont to anastomose with the inferior ophthalmic, and the common trunk passing through the sphenoidal fissure empties into the cavernous sinus. The peculiar feature of these veins, according to Gerrish, is that they have no valves and that under certain conditions the blood may flow from behind forward. Cavernous sinus thrombosis is the most common complication, although meningitis and septicemia also occur. This disease also occurs following carbuncle of the upper lip. We have, then, a sufficient explanation to account for the infection that takes place. Bacteria always are present in the vestibule of the nose and, introduced traumatically or finding their way spontaneously along the hair follicles, enter the blood stream. The retrograde course of the blood stream in veins without valves is sufficient to do the rest.

PROGNOSIS

The course of nasal furunculosis when blood infection has taken place in the past has been almost uniformly fatal. Preventive treatment based on one of the anatomic data just given is important. All interference with a boil inside the nose is to be avoided. The use of a dirty needle followed by squeezing is highly reprehensible. Any measure that has favor for boils elsewhere can be employed here. Phenol (carbolic acid) and a strong solution of an ichthyolate preparation are among those finding especial favor. The procedure of Hurd possesses much merit. He uses warm applications inside and outside the nose followed by incision of the furuncle to a very limited extent and the use of suction. When symptoms of invasion of the blood stream show themselves, the method recommended by Bullack [5] is decidedly appealing. Basing his treatment on the anatomy of the part involved, he advises tying the facial vein at a point from 1½ inches to three-fourths inch below the inner canthus of the eye to prevent cavernous sinus thrombosis. He has employed the method in at least one case with most satisfactory results. The statistics that he has collected of complications following carbuncle of the upper lip are startling, twenty-seven cases with six deaths, three of them due to cavernous sinus thrombosis. He recommends, in advanced cases, ligation also of the superior ophthalmic vein. When thrombosis of the sinus actually has occurred, until recently no successful method for its cure had been devised, although based on the surgical relations Mosher among others has developed one through the orbit where the approach is comparatively easy. The result, however, of Eagleton's work,[6] "twenty-two cases with recovery" after cleaning out the thrombus preceded by ligation of the common carotid, is decidedly encouraging.

My own case, fortunately, was not one of thrombosis. It offered problems, however, almost as difficult of solution. The general septicemia and metastases that followed at one time seemed to render the outcome a hopeless one. In the judgment of all who observed the case, the final recovery was due to the use of mercurochrome-220 soluble, 5 mg. per kilogram of the body weight in a 1 per cent. solution, as recommended by Young,[7] who was the first to employ it. His results in septicemia were so encouraging that the solution has been used by a number of observers for desperate blood conditions, with corresponding good results. In all, four injections were given, none of them followed by any untoward results. In spite of the fact that there are cases on record of acute nephritis following its use, any unqualified statement that the cure was due to the mercurochrome cannot be made because of the fact that the patient had two transfusions. Basing my opinion, however, on the remarkable benefit secured in this single case, I would strongly recommend its use under similar circumstances.

104 East Fortieth Street.

5. Bullack, W. C.: Carbuncle of the Upper Lip, Surg., Gynec. & Obst. 14: 156, 1912.
6. Eagleton: Oral communication to the author; Infective Cavernous Sinus Thrombophlebitis, to be published.
7. Young, H. H., and Hill, J. H.: Treatment of Septicemia and Local Infections by Intravenous Injection of Mercurochrome-220 Soluble and of Gentian Violet, J. A. M. A. 82: 669 (March 1) 1924.

PYOCYANEUS MENINGITIS AFTER LUMBAR PUNCTURE

REPORT OF A CASE WITH APPARENT RECOVERY *

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LOUISVILLE, KY.

Meningitis, apart from the epidemic form, is not infrequently caused by the tubercle bacillus, the pneumococcus and the streptococcus. So far as we were able to ascertain, the case presented here is the first reported case of *Bacillus pyocyaneus* meningitis following lumbar puncture, not preceded by or associated with other pyogenic infection and in which the patient apparently made a complete recovery.

We hope that the presentation of this case may reemphasize the necessity of strict aseptic technic in doing lumbar puncture and outline a method that may prove of value in the treatment of pyocyanic meningitis.

REPORT OF CASE

A. K., a white man, aged 32, entered the Hebrew Hospital of Baltimore, Dec. 15, 1924, complaining of severe frontal and crown headaches.

In 1914, the patient had been treated for pulmonary tuberculosis in a state sanatorium. In 1918, he contracted syphilis and gonorrhea. He complained of girdle pains across the upper abdomen in 1922, and in 1923 he noted weakness and shooting pains in the lower extremities and was unable to walk for six months. At this time, the spinal fluid Wassermann reaction was four plus and globulin one plus, although repeated blood Wassermann tests were negative. Following antisyphilitic treatment, Dec. 5, 1924, a spinal puncture was performed. The cerebrospinal fluid obtained was clear and had a normal cell count, and the Wassermann reaction was negative. The following day, December 6, the patient complained of frontal headaches with pain and stiffness of the neck and back. These symptoms increased in severity, and for several days prior to admission the patient found but little relief even after the administration of morphin.

On admission to the hospital, the patient was fairly well nourished, was conscious, and cried out in pain. There was some slurring of speech and a sluggish response to questions. There was marked rigidity, tenderness and limited motion of

* From the medical service of the Hebrew Hospital, Baltimore.

the neck. There was photophobia, and the pupils reacted sluggishly to light and in accommodation. There was marked diminution of somatic sensory response. Kernig's sign was positive on both sides; Romberg's sign was negative and the gait was not ataxic. There was fibrosis of the apexes of both lungs and some signs of activity. The pulse was 92; the temperature, 104 F.; the respirations, 24; the systolic blood pressure was 108; diastolic, 52. The urine showed a trace of albumin but no casts. A blood examination revealed: leukocytes, 20,500; polymorphonuclear leukocytes, 80 per cent.; lymphocytes, 14 per cent.; large mononuclears, 6 per cent. The blood culture was negative. The blood Wassermann reaction was: water bath, negative; icebox, four plus. On admission, 30 c.c.

Spinal Fluid Examinations

Date	Leukocytes	Polymorphynuclears Per Cent.	Mononuclears Per Cent.	Culture
12-15-24	3,500	93	7	B. pyocyaneus
12-17-24	2,480	92	8	B. pyocyaneus
12-19-24	2,750	88	12	B. pyocyaneus
12-21-24	1,450	86	14	B. pyocyaneus
12-23-24	876	78	22	B. pyocyaneus
12-25-24	875	82	18	B. pyocyaneus
12-27-24	140	71	29	B. pyocyaneus
12-29-24	260	60	40	B. pyocyaneus
12-31-24	412	52	48	No growth
1- 2-25	216	44	56	B. pyocyaneus
1- 5-25	100	0	100	No growth
1- 8-25	544	0	100	No growth
1-13-25	74	0	100	No growth
1-15-25	840	0	100	No growth
1-19-25	33	0	100	No growth
1-22-25	48	0	100	No growth
1-26-25	24	0	100	No growth
1-31-25	18	0	100	No growth
2- 7-25	6	0	100	No growth
2-21-25	8	0	100	No growth
2-28-25	12	0	100	No growth
3- 7-25	9	0	100	No growth
3-10-25	56	0	100	No growth
3-24-25	12	0	100	No growth

of a slightly turbid cerebrospinal fluid was removed under considerable pressure. The cell count was 3,550, and the polymorphonuclear leukocytes, 93 per cent. A gram stain showed gram-negative bacilli. A carbolfuchsin stain was negative for tubercle bacilli. The spinal fluid Wassermann reaction was negative. The globulin reaction by Pandy's method was one plus. A culture of the fluid gave a pure growth of *Bacillus pyocyaneus*. The following day, 25 c.c. of spinal fluid was removed under increased pressure. The spinal cell count was 2,480; polymorphonuclear leukocytes, 92 per cent. A culture taken with sterile technic yielded a pure growth of *Bacillus pyocyaneus*, and the spinal fluid on standing thirty-six hours became a brilliant green. During the first few weeks of the patient's illness, lumbar punctures were done every other day and the spinal canal drained almost completely. As the patient improved, the spinal drainage was done less frequently. Jan. 19, 1925, the first of eight interval doses of intravenous neo-arsphenamin was given. February 14, 10 c.c. of inactivated autogenous blood serum was given intraspinally. A similar dose of 14 c.c. was given, March 4, and a third dose of 10 c.c. was given, March 7. Each time an equal amount of spinal fluid was withdrawn.

The early course in the hospital was characterized by hyperexia, leukocytosis, marked loss of weight and headaches relieved temporarily by spinal drainage. The patient remained mentally clear throughout practically the entire course of the disease. March 26, the temperature became normal and remained practically so thereafter. At this time the patient's appetite increased; he gained weight rapidly and complained of no more headaches. The patient was discharged, April 25, apparently cured.

COMMENT

Meningitis caused by *B. pyocyaneus* after lumbar puncture is of extremely rare occurrence. Sonnenschein,[1] in 1923, reported one case of a robust young man who, a few hours after a lumbar puncture which had shown clear fluid, developed symptoms of acute suppurative meningitis, which proved fatal on the eleventh day. The fluid during life and after death showed only *Bacillus pyocyaneus*.

Abadie and LaRoche[2] reported, in 1918, a case of pyocyaneus meningitis in which the disease followed a skull wound. Treatment was by intraspinal injection of the patient's own serum, which apparently cured the young man when the spinal fluid and blood serum contained *Bacillus pyocyaneus*. Three applications of this serum were made, 3 c.c. of the patient's serum being injected at intervals of eighteen and five days.

Chauffard and LaRoche,[3] in 1917, reported a case of tetanus in which intraspinal treatment was given, and the patient developed *B. pyocyaneus* meningitis. The course was relatively benign and cure resulted. There was no pyocyanic septicemia, and the authors considered this case the first of its kind to be reported.

We are not unmindful of the fact that *B. pyocyaneus* is a less virulent organism than others in the pyogenic group, and the favorable outcome of our case may be due in a large measure to the lesser virulence of this infective agent. In this case, the excessive headaches were relieved by the spinal drainage, and we think that this procedure, together with the intraspinal injection of inactivated autogenous blood serum, had a favorable influence on the course of the disease.

1. Sonnenschein, C.: Pyocyaneus-Meningitis, Klin. Wchnschr. **2**: 1758 (Sept. 17) 1923.

2. Abadie, J., and LaRoche, G.: Pyocyaneus Meningitis, Bull. Acad. de méd. **80**: 15 (July) 1918.

3. Chauffard, A., and LaRoche, G.: A Case of Pyocyaneus Meningitis, Bull. et mém. Soc. méd. d. hôp. de Paris **41**: 646, 1917.

Clinical Notes, Suggestions and New Instruments

AN AUTOMATIC CHISEL

DAVID R. TELSON, M.D., BROOKLYN

The chisels shown in the accompanying illustration are constructed on the principles of the steel worker's automatic punch and the dentist's mallet. When pressure is brought to bear on the handle of the instrument, it can be depressed for a short distance, compressing the spring on the inside of the handle. On further pressure the spring is tripped and a short, sharp blow is delivered at the chisel point.

Automatic chisel.

I believe this instrument has particular value in chiseling at the bottom of wounds in which the surgeon desires to keep his examining finger in contact with the chisel head, and finds it awkward to have his assistant use the mallet, yet finds on using the ordinary chisel that it is apt to slip, as it is difficult to gage the exact force that is used when merely pushing the ordinary chisel by hand. The instrument can be placed at the site, and merely continued pressure causes it to cut its way through the thickness of the bone. The right angle chisel head is useful in raising bone chips from the lamina of the vertebra in the Hibbs spine fusion. I believe the blow delivered by the spring is much softer and less shock producing than the one that is produced by the mallet, and, therefore, the instrument lessens the objection that is made to the use of the Hibbs spine fusion in Pott's disease by causing less trauma of the diseased area.

The instrument is boilable. However, a drop of sterile olive oil may need to be applied to the inside of the mechanism after several boilings. The force of the blow is regulated by screwing down or releasing the head of the instrument.

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SATURDAY, DECEMBER 19, 1925

GOITER PROPHYLAXIS

Less than a decade has passed since systematic measures for the prevention of simple goiter have been instituted on a large scale in this country in regions where the incidence of such thyroid enlargement directs attention to the local possibilities of "disease due to iodin starvation." Iodin preparations of one sort or another have been employed either unwittingly or in a desultory way in the relief of goiter for many years; but it remained for the investigations of Marine and Kimball, beginning about 1917, to furnish a firm foundation for the current prophylactic practices. Thyroid disease is a many headed monster that has often been attacked in the past as if it were a uniform single entity to be overcome. At no time has the importance of accurate differential diagnosis been more urgent than in these days, when not only medical but also lay publications resound the importance of goiter prophylaxis and present volumes of testimony as to the beneficent effectiveness of the attempts already undertaken in this field. As an illustration of the direction followed by the current enthusiasm, the recently advocated conclusions of Hathaway[1] may be cited. He insists that a program that would control the goiter situation should include detailed surveys of all localities where the disorder is suspected; this is the basis for all successful methods of goiter prevention. He recommends the institution of treatment with sodium iodid of the water supplies of all cities and towns that prove to be goitrous; and he adds that small villages not having a common water supply and rural communities must have the iodin supplied by the use of iodized table salt or by iodin tablets of some kind.

There is admittedly much warrant for such recommendations, which have in fact already been put into operation in certain communities under the sanction of competent professional advisers. Medication for the masses and therapy on a wholesome basis—even uniformity of health-promoting recommendations—call for careful consideration. Exercise that is in general admittedly wholesome is by no means always advisable for every member of the family. Cold air is no longer looked on as a universal panacea, even in pneumonia. "One man's meat is another man's poison" is an old saying with modern implications; to this the varied manifestations of allergy bear witness. May it not be well, therefore, for the medical profession to proceed with due caution in the commendable program of goiter prevention, particularly in view of the fact that its advice is likely to be followed with undue enthusiasm by lay followers who are not accustomed to pay attention to exceptions from a wholesale rule? They often forget the importance of adopting recommendations "with a grain of salt"; all too often they pursue the policy which assumes that if a little is good, more ought to be better.

Experienced students of the goiter problem are issuing corrective warnings, but their concern should not be interpreted as dampening the ardor for the possibilities of preventive measures at this time. A highly important movement for health promotion must not be menaced by possible harm from overenthusiasm. Thus Jackson,[2] who writes from Wisconsin with the conviction of an observer within the "goiter belt," asserts, contrary to reports from other sources, that the number of cases of hyperthyroidism has greatly increased as a result of the popular demand for iodin in the treatment of goiter. Consequently, he advises that the element should not be distributed promiscuously either in water or in salt, but should be administered in exact amounts and under a physician's orders. Jackson insists that even minute amounts of iodin are sufficient to initiate symptoms of hyperthyroidism in certain persons with adenomatous goiters. Iodin should be administered, he adds, with particular care to children with adenomatous goiters; it should never be given to adults with this condition.

Likewise Kimball,[3] recognizing that "there is no consistent pathology of goiter," has expressed the message of caution to the readers of The Journal. His own studies show that toxic goiters may result from the use of iodized salt in cases of adenomas of long standing; he adds, however, that these cases may be entirely coincidental, and that too much emphasis should not be placed on this point. Instead of advocating promiscuous wholesale administration, Kimball urges that in all cases of iodin treatment the dosage should be considered in terms of milligrams. The maximum dosage for an adult, provided there are no contraindications, is 10 mg. daily for not longer than one month, during which time the patients should be under very close observation. Kimball believes that there is no danger in the routine prophylaxis of goiter as it is carried out through the schools; namely, the administration of 10 mg. of iodin weekly.

1. Hathaway, J. C.: The Prevention of Simple Goiter, Am. J. M. Sc. **170**: 1 (July) 1925.

2. Jackson, A. S.: Iodin Hyperthyroidism, Am. J. M. Sc. **170**: 271 (Aug.) 1925.

3. Kimball, O. P.: Induced Hyperthyroidism, J. A. M. A. **85**: 1709 (Nov. 28) 1925.

The evaluation of the use of iodin in hyperthyroidism belongs in a separate category, as was recently pointed out in THE JOURNAL.[4] Within the last two years the use of iodin in the treatment of exophthalmic goiter has attained a new vogue.[5] This is, of course, a procedure quite different from the now familiar prophylactic use of iodin in relation to adolescent goiter. The claims for its application in exophthalmic goiter are that the drug will produce abrupt remission in most cases. The remission is often as rapid and as extensive as that following subtotal thyroidectomy. However, iodin alone as now used has not been shown to be sufficient to suppress the disease permanently. After a patient with exophthalmic goiter has been taking the drug, a rapid rise of metabolic rate and increase of toxic symptoms may occur within one or two weeks if the iodin is stopped. Furthermore, in some cases of exophthalmic goiter, iodin has no observable effect. According to Rienhoff,[6] the artificial remission of the condition, as it is produced by iodin, is associated with a change of the thyroid from a hyperplastic to a colloid state. Obvious variations may occur through a very wide range of coincident clinical and structural possibilities. Such studies greatly enhance the opportunity to approach the problem of choice of therapy with greater intelligence.

MUSCULAR EXERCISE AT HIGH ALTITUDES

This is not the first time that radical revision of the older conceptions of the energetics of muscular contraction—in other words, of the nature of muscular work—has been referred to in THE JOURNAL.[7] One of the early steps was the abandonment of the idea that proteins or other nitrogenous compounds supply the energy for muscular performance; for there is no increment of nitrogenous waste such as might be expected from a breakdown of proteins. For a long time the transformation of energy in muscular work was assumed to be due to the oxidation of carbohydrate, presumably glucose, in the muscle. Perhaps the most radical change of opinion regarding the process has been the abandonment of the theory that this organ is a combustion engine, and the acceptance of the view that it is a chemical machine in which the energy of motion is derived directly from chemical energy.

There was a time when the oxidative metabolism was conceived to be somewhat dependent on the oxygen supply, in the same sense that combustion is accelerated by fanning the flame. It has become a dictum of the science of nutrition, however, that "the absorption of oxygen does not cause metabolism, but rather the amount of the metabolism determines the amount of oxygen to be absorbed."[8] In this connection we have heard of late of the possibility of the body's incurring an oxygen deficit under severe exertion. According to the investigations of Hill and Meyerhof, in particular, the process in muscular contraction is anaerobic; that is, it does not primarily involve oxidation. As a recent writer[9] has described the process, the muscle accumulates its energy in a form known as a lactic acid precursor, glycogen, which is easily and quickly made available at the instant of contraction. The energy becomes available by the transformation of glycogen into lactic acid, and this process is immediately followed by a contraction. Afterward, the lactic acid remains to be reconverted into glycogen or oxidized. In the reconversion process approximately one molecule of lactic acid is oxidized to every five reconverted. If, after contraction, enough oxygen is not available for reconverting the acid into the precursor, then the acid remains, so to speak, as a security for future oxidation. In other words, the amount of lactic acid is a measure of the oxygen debt. This point of view makes it easier to understand how it is possible for a man to take an amount of muscular exercise that requires far more oxygen than can be supplied during the exercise. The oxygen is not used in the process of muscular contraction but afterward during the process of recovery. The muscle is capable of going into debt for oxygen. Thus, Henderson and Haggard[10] have recently shown that an oarsman may exert a power which exceeds by 30 to 60 per cent. that afforded by the oxygen simultaneously absorbed; he thus draws heavily on his credit, and incurs oxygen deficits of from 4 to 8 liters or more; these deficits are repaid by the high rate of oxygen absorption for a time after the work is ended.

It might be expected that a deficiency in the available supply of oxygen would cause the oxygen debt, after a selected load of work, to be larger than when the supply is abundant. The oxygen debt, as ordinarily defined, is determined by measuring the total oxygen used in the selected period of recovery and by subtracting from this the amount of oxygen that the body would have used in the same time during rest. Schneider and Clarke, at the School of Aviation

4. Evaluation of Present Status of Iodin in Hyperthyroidism, Current Comment, J. A. M. A. **85**: 1732 (Nov. 28) 1925.
5. Plummer, H. S.: Results of Administering Iodin to Patients Having Exophthalmic Goiter, J. A. M. A. **80**: 1955 (June 30) 1923. Starr, P.; Walcott, H. P.; Segall, H. N., and Means, J. H.: The Effect of Iodin in Exophthalmic Goiter, Arch. Int. Med. **34**: 355 (Sept.) 1924. Plummer, H. S., and Boothby, W. M.: The Value of Iodin in Exophthalmic Goiter, J. Iowa M. Soc. **14**: 66 (Feb.) 1924. Fraser, F. R.: Iodine in Exophthalmic Goiter, Brit. M. J. **1**: 1 (Jan. 3) 1925. Kimball, O. P.: Induced Hyperthyroidism, J. A. M. A. **85**: 1709 (Nov. 28) 1925. Pemberton, J. deJ.: Present-Day Surgical Treatment of Diseases of the Thyroid Gland, J. A. M. A. **85**: 1882 (Dec. 12) 1925.
6. Rienhoff, W. F., Jr.: The Histological Changes Brought About in Cases of Exophthalmic Goiter by the Administration of Iodine, Bull. Johns Hopkins Hosp. **37**: 285 (Nov.) 1925.
7. When a Muscle Contracts, editorial, J. A. M. A. **84**: 442 (Feb. 7) 1925; The Food and Fuel of Athletes, ibid. **84**: 2004 (June 27) 1925.
8. Lusk, Graham: Science of Nutrition, Philadelphia, W. B. Saunders Company, 1917, p. 31.
9. Schneider, E. C., and Clarke, R. W.: Studies on Muscular Exercise Under Low Barometric Pressure, Am. J. Physiol. **74**: 334 (Oct.) 1925.
10. Henderson, Yandell; and Haggard, H. W.: The Maximum of Human Power and Its Fuel, Am. J. Physiol. **72**: 264 (April) 1925.

Medicine, Mitchel Field, Long Island, have observed that the oxidative processes of the body are retarded at barometric pressures less than 410 mm. The interference of a low barometric pressure with the oxidative processes of the body is accentuated during physical work. The aviation authorities assert that, despite the markedly decreased consumption of oxygen during work at a low barometric pressure corresponding to a very high altitude, it is not shown that the oxygen debt of the body is increased by work at the low pressure. Theoretically, they state, the oxygen debt should be as much larger when work is done under a low pressure as the oxygen consumption at that pressure is less than when the same load is carried at the normal barometric pressure. Such is not the case. In the period of recovery after exercise, the consumption of oxygen is approximately equal after equal loads of work at normal and low barometric pressures. Evidently the body protects itself against an oxygen deficit in the early stages of existence at lowered barometric pressures until various familiar protective devices come into play. The disturbances in the biochemical condition of the body are slowly compensated for, if sufficient time is spent under the new condition to permit the system to reestablish an equilibrium.

SUNSHINE AND HEALTH

There is something appealing in the doctrine of the healthfulness of fresh air and sunshine. It almost seems as though they represent instinctive preferences on the part of mankind so far as modes of living are concerned. These atmospheric factors play a large part in the propaganda of medical climatology, yet it has not been easy to define their potencies in terms of concrete benefits or to describe their functions in the language of scientific endeavor. The demonstration that the sun's rays may destroy certain microorganisms was welcomed, for it gave the semblance of tangible advantage to sunlight. The antirachitic effects of exposure to sunlight discovered during the last few years indicate the therapeutic and prophylactic efficacy of sunlit air. Hope has been awakened of further advantages to be learned, and warnings have even been issued against the possible harmfulness of overexposure to such types of radiation in the belief that it may be healthful, curative or even injurious, depending on the "dosage."

Among the slowly growing accumulation of measurable facts are data on the interrelation of rickets and rachitic predisposition to climatic factors. This has been stressed before in THE JOURNAL.[1] It is not easy to evaluate correctly the relative importance of diet and environment in this connection, especially since the food intake is likely to alter with the seasons and geographic locations, so that what is ascribed to sunshine may in fact be associated with better nutrition depending on dietary changes. Among the recent statistics relating to the composition of the blood—a good index of rachitic tendencies—the data of Riesenfeld, Handelman and Rose[2] are significant. More than a thousand determinations of inorganic phosphorus were made on the blood of mothers and their new-born infants. The investigation extended over a period of fourteen consecutive months, and the data obtained were correlated with the factors causative of rickets. No significant difference was found between the average inorganic phosphorus of the white and negro mothers or of their infants. The inorganic phosphorus of the blood of the new-born infant was not affected by the previous habitat of the mother (that is, tropics or temperate zone). The time the mother spent outdoors during gestation showed no influence on the inorganic phosphorus of the infant's blood. The diet of the mother was one of the controlling factors of the inorganic phosphorus content of the blood of the new-born infants. However, a definite seasonal variation of inorganic phosphorus was noted, which is in harmony with the recognized seasonal incidence of rickets. The curves of available sunlight hours and inorganic phosphorus of the new-born infant are parallel in the latter half of the year, the points of resemblance in the sunlight curve preceding that of the inorganic phosphorus curve by one month.

According to these observers, individual sunlight exposure and the available sunlight in the community were not found to be such obvious causative factors in the inorganic phosphorus of the infant as we are led to expect from the current literature on rickets. On the other hand, these experimenters believe that the relative humidity is strikingly associated with the rise and fall of the average inorganic phosphorus of the infant's blood. In the past, this relation between the humidity and blood phosphorus concentration has not been emphasized. It is suggested that moisture and precipitation may intensify the effect of the ultraviolet rays by increasing their concentration.

In further emphasis of the interrelation of climate and bone development, Moore and Dennis[3] of Portland, Ore., have observed that craniotabes is more prevalent in the Pacific Northwest than in sections of the country having more sunshine. It occurs most frequently during the months of March and April, also being most severe in the spring months. Thus the seasonal incidence of craniotabes in such regions is the same as that of undisputed signs of rickets.

1. Hess, A. F.: The Ultraviolet Rays of the Sun, J. A. M. A. **84**: 1033 (April 4) 1925. The Antirachitic Vitamin, editorial, ibid. **85**: 976 (Sept. 26) 1925.

2. Riesenfeld, E. A.; Handelman, Isidore; and Rose, A. R.: Inorganic Phosphorus in the Blood of the New-Born, Am. J. Dis. Child. **30**: 646 (Nov.) 1925.

3. Moore, C. U., and Dennis, H. G.: Craniotabes: Its Prevalence and Significance, Am. J. Dis. Child. **30**: 683 (Nov.) 1925.

Current Comment

THE BEHAVIOR OF SULPHATES IN THE BODY

The urine contains sulphates in variable amounts ranging, as a rule, from 1 to 2 gm. of sulphur daily. Except under special circumstances these do not arise from preformed sulphates introduced into the organism but are products of its oxidative metabolism. Sulphur is ingested chiefly in the form of protein; the quantities consumed in other compounds are small at most. Between the moment of intake and that of its output this element therefore undergoes, somewhere in the body, chemical reactions resulting in the production of sulphate ions. What happens to them prior to their elimination has been largely a matter of conjecture. With respect to the physiologic migrations of chlorids and phosphates, a considerable mass of information is available; not so in the case of sulphates. A few years ago, Denis [1] of the Tulane University School of Medicine at New Orleans ascertained that sulphates circulate in normal human blood to the extent of from 1 to 0.5 mg. of sulphur per hundred cubic centimeters of blood. She also observed that in nephritic patients there may be a manifold retention of sulphates in the blood. According to Denis and Hobson [2] the sulphate ion occupies a position somewhat similar to that of uric acid as regards ease of excretion by the kidney, whereas the chlorin ion may be compared in this respect to the creatinin fraction; in other words, the sulphate ion appears to be excreted with greater difficulty than does any other inorganic radical ordinarily present in normal blood and, therefore, is retained more frequently and in greater amount than any other inorganic component. The reverse may be said to be true of the chlorin ion, which, on account of its apparent ease of excretion, is seldom retained except in certain cases in which marked impairment of kidney function takes place, whereas the retention of inorganic phosphate may amount to 400 per cent. and of sulphate to as much as 3,000 per cent. of the average normal value. When chlorids are injected into the blood stream, they disappear from it with great rapidity; sulphates, on the other hand, tend to be retained for some time.[3] It is well known that ingested sulphates do not readily penetrate the alimentary barrier; hence they are only slowly absorbed and by their accumulation in the bowel tend to promote laxation. Denis and Leche [4] have now added another chapter to the story of sulphate behavior in the body by the demonstration that the sulphate ions are not readily absorbed by the tissues, even when the blood abounds in them. From this it appears that it is the kidneys alone that exert any noteworthy selective retention of sulphates.

1. Denis, W.: Sulfates in Blood, J. Biol. Chem. **49**: 311 (Dec.) 1921.
2. Denis, W., and Hobson, S.: A Study of the Inorganic Constituents of the Blood Serum in Nephritis, J. Biol. Chem. **55**: 183 (Feb.) 1923.
3. Barkus, O.: On the Rate of Elimination of Inorganic Salts from the Blood Stream, Am. J. Physiol. **49**: 35 (June) 1924.
4. Denis, W., and Leche, Stella: On the Distribution of Injected Sulfates in Tissues, J. Biol. Chem. **65**: 565 (Oct.) 1925.

THE PARATHYROIDS AND IODIN

The identification of the parathyroid glands has a sufficiently recent history to excuse some of the confusion that still is current with regard to them. A discriminating anatomic description of these structures was not published until Sandström's work in 1880; thereupon, several years intervened until it was discovered that the parathyroids have a special physiologic significance that is not to be confused with the function of the thyroids. It is not strange, therefore, that when attention was focused on the presence of iodin in the latter glands after the epoch-making research of Baumann in 1895, the parathyroids should have been subjected anew to consideration from the standpoint of this chemical element. Not a little confusion was early occasioned by the fact that iodin was actually reported to be a component of the parathyroids. Presently, conflicting reports appeared. It is quite conceivable that, unless the dissections are carefully carried out, fragments of adherent thyroidal tissue may be included in parathyroid preparations; it is possible, likewise, that iodin may actually be distributed more widely in the body than was at first supposed. The latest evidence secured by Hjort, Gruhzit and Flieger [1] seem to afford an explanation. Histologic examinations have convinced them that there need be no contamination of parathyroid preparations with thyroid tissue at the time of collection from the animal. This is certainly true if the preparations are made from the external bovine glands. Careful chemical analysis on histologically controlled materials has disclosed that the iodin content of the parathyroids is of no greater magnitude than that of the ovaries, pituitary and thymus. The results, indicating from 0.003 to 0.006 per cent. of iodin in the desiccated tissues, were so nearly alike as to warrant the conclusion that only a slight trace of iodin is contained in the glands examined and that the iodin is quite uniformly distributed throughout the animal glandular system, the thyroid excepted. These findings are essentially a corroboration of the majority of past observations; and they suggest that the iodin found in these glands probably represents the normal distribution of that substance throughout the body tissues. Consequently, claims regarding the presence of iodin in commercial parathyroid products should not be allowed to produce any unwarranted implications with respect to therapeutic potencies or properties.

1. Hjort, A. M.; Gruhzit, O. M., and Flieger, A. G.: The Parathyroid Glands and Their Iodine Content, J. Lab. & Clin. Med. **10**: 979 (Sept.) 1925.

Essentials for Medical Licensure.—It appears to me that it is essential for the good of the community that all individuals licensed to treat the sick members of the community should have received the same basal education, and should have passed through practical courses qualifying them to obtain diplomas or degrees. At the present time the minimum curriculum in this country is a five years' course of study after having passed a preliminary examination in general knowledge, and a preregistration examination in elementary chemistry and elementary physics.—Waring, H. J.: Osteopathy, Chiropractic and Medicine, *Brit. M. J.* **2**:682 (Oct. 17) 1925.

Association News

GRANTS FOR RESEARCH

Committee Requests Information Concerning Needs

The Committee on Scientific Research of the American Medical Association announces that applications for grants should be mailed to this committee as soon as possible. Recommendations will be made, Jan. 30, 1926. Applications giving full details may be forwarded to the chairman of the Committee on Scientific Research, American Medical Association, 535 North Dearborn Street, Chicago.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Society News.—Dr. Willard J. Stone, Pasadena, addressed the San Diego County Medical Society, December 8, on "Certain Aspects of Heart Disease," and Dr. James W. Sherrill, San Diego, on "The Parathyroids."——Dr. James F. Percy, Los Angeles, recently addressed the Tulare County Medical Society on "The Modern Treatment of Cancer."——Dr. Steele F. Stewart addressed the Los Angeles Medical Association, Los Angeles, December 3, on "Convalescent Care of Infantile Paralysis."

Personal.—Dr. Aleck P. Harrison has been appointed health officer of Santa Barbara County, to succeed Dr. George S. Loveren.——Dr. Matthew F. Desmond has been appointed health officer of Burlingame.——Dr. Jessie B. Farrior has been appointed resident physician at St. Anthony's Hospital, Oakland.——Dr. Buchanan Caldwell, Biggs, has been appointed health officer of Butte County to succeed the late Dr. Lewis Q. Thompson.——Dr. Philip B. Fry, Benicia, has been appointed health officer of Benicia.

Reinstatement Denied.—At the regular meeting of the California State Board of Medical Examiners, October 20, Sacramento, the petition of Dr. Earl Harlan, Colusa, for the restitution of his license, which was revoked, July 7, was denied. Dr. Harlan was accused of irregularities in regard to narcotics. Dr. Toshio Ichioka, Los Angeles, who was found guilty of illegal advertising, was given three years probation in which to practice on condition that he make his advertising conform to standards of the board.

Prizes for Medical Essays.—The council of the California Medical Association, at a meeting at Long Beach, November 8, resolved to establish two prizes of $150 to be competed for at the 1926 annual convention, one for a paper on original research, the other on a clinical subject, the scope of the material to be determined by the committee. Any member of the state association is eligible to compete, and papers must be submitted before March 19, 1926. Inquiries as to the contest should be addressed to the chairman of the committee, Dr. Walter C. Alvarez, 177 Post Street, San Francisco; other members of the committee are Dr. Dudley Fulton, Los Angeles, and Fred Fairchild, Woodland.

CONNECTICUT

Laymen Health Officers Appointed.—Carolyn Hanchett has been appointed health officer of Canaan, replacing Isaac P. Hornbeck.——Mr. Charles B. Eastman has been appointed health officer of Woodbury, replacing Mr. Charles H. Capewell.——Mr. Marshall E. Case has been appointed health officer of Barkhamsted, replacing Mr. Herbert Case, resigned.

Health Officers Appointed.—Dr. Samuel Bartholomew has been appointed health officer of Goshen, to succeed the late Dr. Caroline North Stevens.——Dr. Lester F. Turney has been appointed health officer of Windsor, to succeed the late Dr. Howard F. King.——Dr. Voyle A. Paul is now acting health officer of Stamford until an appointee is named to succeed Dr. Raymond D. Fear.

Yale to Revise Educational Methods.—The faculty of Yale University School of Medicine, New Haven, is considering the abolition of the year system of study and the division of the student body into classes. Dean Winternitz announced, December 16, that plans are being made to revise thoroughly the educational methods with a view to placing less emphasis on routine class work and more on independent thought and research. The program will involve abolishing the system of examinations at the end of courses. The student will select the sequence of his studies in the first two years of the curriculum, and after qualifying for clinical subjects will again be allowed the liberty of choice. The completion of these studies and their arrangement will be largely a matter of his choice and ability, and his admission to courses will depend on his fitness as determined by the instructor in charge. As a check on the accomplishment of students, there will be group examinations and a graduating thesis, and within reasonable limits the student will determine when he will present himself for such a test.

DISTRICT OF COLUMBIA

Adcox Pleads Guilty in Washington.—Dr. Robert Adcox and Sam Kaplan, St. Louis, pleaded guilty, December 7, in Washington, it is reported, to an indictment charging them with conspiracy to use the mails to defraud; Dr. Ralph A. Voigt, Kansas City, Mo., and "Bishop" Helmuth P. Holler, dean of Oriental University, were indicted with this pair in March, 1924. The government charged, it is said, that they represented Oriental University as a bona fide institution and issued medical diplomas. The catalogue of this school is said to show that about 700 various degrees were issued. "Bishop" Holler's former secretary testified that the "faculty" met once a month to sign diplomas, and that each member received 25 cents per signature. A medical degree is said to have cost $100, and could be obtained in six and sometimes in three months; a degree in dental surgery cost $75 and doctor of divinity, $55. Some of these diplomas exhibited at the trial had government seals, said to have been obtained from certificates issued by the Attorney General's office which indicated that certain persons were notary publics. An alumni association and endowment fund had been started with President Obregon of Mexico heading the endowment fund committee, other members being in Brazil, Japan, Switzerland and other places.

FLORIDA

Increase in Death Rate.—The Department of Commerce announces that the 1924 death rate for Florida was 1,484 per 100,000 population as compared with 1,349 in 1923. The increase is largely accounted for by increases in the death rates from heart disease, pneumonia, automobile accidents and cancer.

The Florida Migration.—About 700 physicians took the June and October examinations to obtain licenses to practice medicine in Florida, according to a statement in the New York *Times*, credited to the Florida state health officer. While the number of physicians is considered sufficient (there were 1,452, Jan. 1, 1925) to protect the public health, the number of tourists living in camps, estimated by the state health officer at 125,000 and by others at as much as 600,000, demands careful consideration. There are 178 certified tourists' camps and an unknown number of small camps. The inspection of these camps is in the hands of a field staff of seven, the legislature having failed to provide funds for more inspectors. There are physicians as full time health officers at Miami, Jacksonville, Tampa, Coral Gables, Lakeland, Fort Pierce, and Hollywood, while West Palm Beach has a layman as health officer, and St. Petersburg and Fort Lauderdale have health officers who are veterinarians. The city of Miami, the most congested place in the state, has twenty-six sanitary inspectors. The general problem of sanitation was taken up December 10-11, at a two-day conference of the League of Florida Municipalities at Orlando, attended by representatives or the mayors of all cities in the state. Local physicians in places having no full-time health officers are devoting part time to municipal health problems. The state health officer, Dr. Burdett L. Arms, stated that every step to guard against epidemics is being taken.

ILLINOIS

Medical Board Objects to Free Immunization.—The medical board of St. Anthony's Hospital, Rock Island, has passed a resolution, according to the Rock Island *Times*, opposing the administration of toxin-antitoxin free of charge to school

children under the direction of school physicians; as a result, it is said, the plans of the school superintendent to have pupils immunized against diphtheria have been changed, and family physicians will do the work when requested by parents. The toxin-antitoxin which had been ordered from the state health department will be turned over for this purpose without charge.

Chicago

Society News.—There was a joint meeting of the Chicago Medical Society and the Chicago Roentgen Society, December 16, at which Dr. James H. Hutton exhibited a case of hemochromatosis in a woman, and Dr. Mary E. Hanks read a paper on "Roentgen Ray as a Remedy in Fibroid and Other Benign Gynecologic Diseases."——At the tenth annual meeting of the board of governors of the Institute of Medicine of Chicago, December 9, Dr. Anton J. Carlson, professor and chairman of the department of physiology, University of Chicago, was elected president of the Institute for 1926; Dr. Robert B. Preble, vice president; Dr. George H. Coleman, secretary; Dr. John Favill, treasurer, and Dr. Ludvig Hektoen, chairman of the board.——Dr. William E. Gallie, Toronto, will address the Orthopedic Club, December 22, at the University Club on "Transplantation of Fibrous Tissue in Repair of Anatomic Defects." Dr. Joseph C. Bloodgood, Baltimore, will address the club, January 8, on "A Brief Review of the Salient Points in the Diagnosis and Treatment of Benign and Malignant Lesions of Bone from an Industrial Standpoint."——There was a dinner at the Hamilton Club, December 16, in honor of Dr. Amedee Granger, New Orleans, and Dr. Russell L. Hayden, Kansas City, Mo., who addressed the Chicago Medical Society that evening on "Radiographic Examination of the Mastoids" and "The Value of the Dental Radiograph in Determining Periapical Infection," respectively.

MAINE

Society News.—Dr. John L. Morse, Boston, held a clinic recently before the semiannual meeting of the Aroostook County Medical Society at Fort Fairfield, and in the afternoon addressed the society on "Physical Examination of Children."——Dr. Foster S. Kellogg, Boston, recently addressed the Androscoggin County Medical Society, Lewiston, on "Obstetrics."——Dr. Alfred Mitchell, Jr., Portland, recently addressed the Kennebec County Medical Society, Waterville, on "A Review of Urology."

MARYLAND

Society Election.—Dr. George L. Streeter, chief of the department of embryology of the Carnegie Institute, Washington, D. C., gave an illustrated lecture before the Baltimore City Medical Society, December 4, on "The Miller Specimen, the Youngest Known Human Embryo." Dr. Dean Lewis, Johns Hopkins University Medical School, gave an illustrated lecture on "Surgical Diseases of the Large Bowel"; Dr. Isador C. Rubin, New York, spoke on "Diagnostic and Therapeutic Application of Peruterine Insufflation in Cases of Sterility." At this meeting Dr. William T. Watson was elected president of the society; Dr. E. H. Robertson, vice president; Dr. Edward P. Smith, secretary, and Dr. Charles E. Brack, treasurer.

Infant Mortality Declines; Birth Rate Rises.—A report by Dr James H. Mason Knox, Jr., chief of the Bureau of Child Hygiene, state department of health, shows a steady decline in infant mortality in Maryland and an increase in the birth rate. Of every five babies born in 1910, one died before reaching 1 year of age, while last year the ratio was one death to every twelve births. Deaths of children under 1 year of age have decreased about 25 per cent. last year as compared with 1910. For the same years, the increase in births is about 60 per cent. In 1910, the first year for which figures were kept by the state deparement of health, 2,169 infant deaths were recorded; last year the total was 1,509. Births in 1910 numbered 10,710, as compared with 17,248 last year.

MASSACHUSETTS

Fellowship in Medicine.—The will of M. Douglas Flattery, Boston, who died November 25, provides for a bequest of $25,000 to Harvard University, which will be held in trust for the M. Douglas Flattery Fellowship and a research fellowship in medicine.

Society News.—Dr. Raphael Isaacs, Huntington, addressed the North Shore Medical Fraternity, November 3, on "Diseases of the Blood and Blood-Making Organs," illustrated with lantern slides.——Dr. Albert Warren Stearns, Boston, psychiatrist to Charlestown State Prison, addressed the Worcester District Medical Society, November 11, on "Conduct Disorders as a Public Health Problem."

Personal.—Dr. Abraham Myerson, professor of neurology and neuropathology, Tufts Medical School, Boston, addressed a meeting at the Chamber of Commerce, November 18, held under the auspices of various industrial societies, on "The Practical Psychology of Business," and Dr. Charles Macfie Campbell, director of the Boston Psychopathic Hospital on "The Mental Health of the Individual Worker."

MICHIGAN

Dr. Darling Honored.—Dr. Cyrenus G. Darling, Ann Arbor, was the guest of honor at a dinner at St. Joseph's Mercy Hospital, tendered by the hospital and staff, on the occasion of his forty-fourth year in the practice of medicine; among the speakers were Harley A. Haynes, director of the University Hospital; Walter H. Sawyer, regent of the University, and Rev. Michael P. Bourke, Detroit. Dr. Darling was presented with forty-four American Beauty roses.

"Minimum Program" for County Societies.—The *Journal of the Michigan State Medical Society* for December publishes the "Minimum Program for County Societies," which the council recently approved and which many county societies have adopted (THE JOURNAL, October 17, p. 1230; November 14, p. 1565). The program calls for ten meetings a year, at three of which local speakers will appear with definite planned discussions; each society shall have a "scientific team" of two or three members who will prepare and give a program on request before at least three other societies. The society shall institute a program of physical examinations in which all members shall agree to have a complete physical examination themselves and to secure at least five patients who will be examined. Each society shall have at least one public health lecture group which will give at least five lectures in communities outside their resident communities; each society will assist other organizations so that public lectures may be held one in each high school, one for each parent teacher association, one for each luncheon club, one for each woman's club and one for each association of commerce. There will be at least three dinner meetings at which the speakers will not be medical men, and at least one picnic and one social evening in cooperation with members of closely related organizations. Each meeting of the society shall be reported to the local newspapers in such form that at least one point of value is clear to the reader, and the secretary will report monthly complete records of activities to the state medical society.

MINNESOTA

Personal.—Dr. Audley V. Fankboner, Motley, has accepted the position of superintendent of the Lenont Aurora Hospital, Aurora.——Dr. Alexander J. McRae, Duluth, has resigned as superintendent of St. Luke's Hospital, which position he held for twenty-five years.

Award to Dr. Rosenow.—The Ohio State Dental Society, at the sixtieth annual convention, Columbus, December 2, awarded the Callahan gold medal for 1925 to Dr. Edward C. Rosenow, Mayo Clinic, Rochester, for "outstanding contributions to medical, bacteriologic and dental education."

Society News.—The Hennepin County Medical Society and the Ramsey County Society held a joint meeting, December 7, at the Town and Country Club, Minneapolis, and were addressed by Dr. Arnold Schwyzer on "Surgical Experiences in the Pharyngolaryngeal Area," and by Dr. Frederick H. K. Schaaf on "The Present Status of Stimulation (So-Called Foreign Protein) Therapy." Dr. Orianna McDaniel gave "A Brief Review of Poliomyelitis in Minnesota" before the society, December 9.

MISSOURI

Memorial to Dr. Hypes.—The building committee of the St. Louis Medical Society received a check, November 12, for $7,500 for a memorial for the late Dr. Benjamin M. Hypes, an ex-president, which will be applied as requested, to the "President's Room" in the library.

Society News.—Dr. Frank J. Hall addressed the Jasper County Medical Society, Joplin, November 17, on "Relation of Tissue Diagnosis to Hospital Service," and Dr. Ralph E. Duncan, on "Relation of Laboratory Medicine to General Medicine."——Dr. John L. Yates, Milwaukee, addressed the St. Louis Medical Society, November 24, on "The Biology and Treatment of Cancer."——Dr. Amand N. Ravold was

recently elected president of the St. Louis Medical Society; Drs. Charles A. Vosburgh and Floyd Stewart, vice presidents, and Dr. Edwin C. Funsch, secretary.——The Jackson County Medical Society will conduct a symposium, December 15, on "Obstruction of Urinary Bladder Neck" and a symposium, December 22, on "Pernicious Anemia." Prof. Carl F. Nelson, University of Kansas School of Medicine, addressed the society, December 8, on "Cancer—Its Biochemistry."——Dr. Austin B. Jones, Kansas City, addressed the Clay County Medical Society, Excelsior Springs, recently, on "Treatment of Lobar Pneumonia."

The Adcox Confession (Continued).—Branch agencies of the diploma mill having been organized in several cities, Adcox did not have to travel from coast to coast any longer. He had time to develop a new field. He had known for a long time, he says in the St. Louis *Star*, that "big money" could be made in obtaining licenses for "dumb-bells" to practice medicine. Now, after a "thorough investigation," he sent for the "young chap" who offered $1,000 for a license to practice in a Southern state. The offer was repeated and Adcox was assured that the applicant had brains enough to keep out of trouble. Agreeing to take the examination for him, Adcox mailed an application to the board, using the name and address of his client. When the notice to appear was received, he left for the "scene of the big adventure," wondering whether his first attempt in the license market would fail. He finished the "really difficult examination" in two days, and in about a week the "young chap" came to his house with the license and within another week he had rented an office and begun to practice. Adcox says that in a few days he received a dozen requests for licenses. He conferred with Ralph A. Voigt and others, and "one of the men" in his organization promptly "opened up Arkansas." Scores of men ignorant of medicine for the most part—at times enough to warrant the railway to use a special car—made the trip to Little Rock. The names of those who were licensed, he says, can be found in the records. Florida was next to be "opened up." Any one who had a bogus diploma and $500 could get a license there. The examination questions, it is said, were always the same. They were about like these: 1. Are you a doctor? 2. Got a diploma? 3. Do you want to practice medicine in Florida? 4. Can you keep your mouth shut? 5. Did you bring your $500?

When Adcox was taking an examination in the name of another man, a member of the board of examiners tapped him on the shoulder and said, "Come to my office when you finish." The examiner advised Adcox that the next time he came he bring his young men with him and drop into his office the day before the examination. He was told there would be an envelop on the mantel piece in which "you might leave a little something in return for what you find." This meant that Adcox need not handle his applicants one at a time any longer, but that he could bring several, or enough to require a special car. Returning to St. Louis, he looked over the list of men seeking assistance and selected five of the "brightest"; he employed a young doctor who could answer almost any question to help in case of need, and the seven left for the city in the South. Adcox called on the friendly examiner and found a large envelop on the mantel in which was a list of the questions. He took the questions, placed a number of twenty dollar bills in the envelop, and put it back on the mantel. He and the "bright young doctor" then prepared answers to the questions and gave the five applicants each a "pony," which could be concealed in the palm. All five passed and were licensed; some remained in this Southern state to practice, and others after a time went elsewhere with licenses obtained by reciprocity. This board met four times a year; Adcox could not hope, therefore, to obtain enough licenses from this source for all who applied to him, so he took examinations in other states in the names of men of about his age, while Ralph A. Voigt took care of the young fellows in Kansas City. They had on their list several "bright young doctors" who for $500 and expenses would go to any state to take an examination under the name of one of their "clients." Voigt was kept busy taking examinations in Iowa, Illinois, Kansas, Texas, Tennessee, Missouri and other states; he, Adcox says, has taken as many as five prospects into an examination and supplied all of them with answers; when a board required applicants to file their photographs, Voigt would attach a trick photograph of himself to an application which was made out in the name of his client. The photograph would fade in six weeks, leaving a piece of blank paper. Adcox's graft in the Southern state had lasted about a year when his friend on the board of examiners died. Looking about for a new field, he learned that Connecticut had "been opened up."

NEBRASKA

Personal.—Dr. Ethel M. Laybourne has been elected superintendent of the Bryan Memorial Hospital, Lincoln; Dr. Laybourne has been a missionary in India for nine years.

Society News.—Dr. Palmer Findley, Omaha, formerly president of the state medical association, gave a lantern slide lecture on "Puerperal Infection" before the annual meeting of the Eighth Councilor District and Holt County medical societies, O'Neill, October 22. The present officers of the society, Dr. Charles H. Root, Bassett, and Dr. Frederic L. Wilson, Stuart, were unanimously reelected president and secretary-treasurer, respectively.——Dr. James V. Beghtol, Hastings, has been elected president of the Republican Valley and Tenth Council or District medical societies, to succeed Dr. Ralph D. Green, Beaver City.——Dr. Harry Gideon Wells, professor of pathology, University of Chicago, addressed the Lancaster County Medical Society, Lincoln, November 21, on "Heredity in the Relation of Cancer to the Human Species."——Dr. Adolph Sachs was elected president of the Omaha Douglas County Medical Society at the annual meeting, December 8; Dr. Frank M. Conlin, vice president, and Dr. Earl C. Sage, secretary-treasurer.

NEW YORK

Osler Club at Saranac Lake.—The Osler Club, formed at Saranac Lake, held its inaugural meeting, December 9. The purposes of the club include the fostering of good fellowship, stimulation of the study of medical history and the growth of medical libraries; an artistic souvenir program was embellished with selections from the works of Osler.

Veteran Physicians Honored.—The Suffolk County Medical Society, Riverhead, gave a banquet, December 11, in honor of Dr. Clarence C. Miles of Greenport and Dr. Edwin H. Moore of Bay Shore, each of whom has completed a half century in the practice of medicine. The honored guests are still active; Dr. Miles has been recently elected president of the Southold Savings Bank, and Dr. Moore has for many years been coroner of the county.

Society News.—Dr. James S. Ames, Babylon, was elected president of the Suffolk County Medical Society at the October meeting, Riverhead, and Dr. Edwin P. Kolb, Holtsville, secretary. Dr. William St. Lawrence, New York, addressed the society on the use of toxin antitoxin. Dr. Joseph S. Lawrence, executive officer of the state medical society, gave an address. The lectures on psychiatry, approved by the society at the annual meeting, October 29, began December 3 and will continue on Thursdays for nine weeks.——Dr. Smith E. Jelliffe, New York, addressed the annual joint meeting of the Newburgh and Poughkeepsie medical societies at Newburgh, November 17, on "Psychanalysis and Organic Disease."——The New York Society of Orthodontists met at the Vanderbilt Hotel, New York, December 9; the afternoon was devoted to photography, which was discussed, among others, by L. A. Jones, head of the physics department, research laboratory, Eastman Kodak Company, Rochester; the evening session was addressed by Thaddeus P. Hyatt on "Prophylactic Odontotomy as Related to Orthodontia." The next meeting will be in March, 1926, when various committees of the First International Orthodontic Congress will give reports. Charles A. Spahn, D.D.S., 121 East Sixtieth Street, New York, is secretary.

New York City

Personal.—Dr. Hideyo Noguchi received the degree of Doctor, Honoris Causa, November 28, at the Sorbonne, Paris.——Dr. Charles F. Nichols has been commissioned a major in the U. S. Army Reserve to command the sanitary detachment of the One Hundred and Sixth Infantry.——Dr. Oliver R. Avison, who has been on active duty in Seoul, Korea, since 1893, and is president of the Severence Union Medical College, is at present in New York. Dr. Avison, according to the *New York Medical Week*, spent years in organizing a medical language in Korean and has translated Gray's Anatomy into that language.

Hospital News.—A group of physicians has purchased a site on the west side of East End Avenue between Eighty-Seventh and Eighty-Eighth streets, on which they will build a fifteen-story hospital-hotel.——The board of directors of the New York Post-Graduate Medical School and Hospital held a reception, November 24, to mark the formal opening of the new library.——Sir William Arbuthnot Lane, London, attended the breaking of ground for the clinics building at the new Columbia-Presbyterian Medical Center, November 25.——The Knickerbocker Hospital has been permitted to mort-

gage its property for $50,000, which is to be applied on the construction of the new hospital at One Hundred and Thirtieth Street and Convent Avenue.

Proposed Merger of Hospitals.—The New York Academy of Medicine is sponsoring a proposed law to consolidate under one department the control and management of the public hospitals of the city exclusive of those which care for contagious and infectious disease. The bill would place under the hospital advisory board, which is composed of physicians, the scientific management of these hospitals, and would place the business administration, as well as the determination of which patients are able to pay for their care, in the hands of a layman. The purpose of the bill is to relieve physicians of work with which they are not familiar and to give these hospitals the best medical management. The plan has been approved by the mayor and was taken up before the board of estimate branch of the assembly, December 11.

NORTH CAROLINA

Personal.—Dr. William T. Shaver, Badin, has been appointed company surgeon for the Southern Railway, to succeed the late Dr. Jasper N. Anderson, and Dr. George D. Vick, Selma, has been appointed assistant surgeon.

Increase in Death Rate.—The Department of Commerce announces that the 1924 death rate for North Carolina was 1,221 per hundred thousand of population, as compared with 1,197 in 1923. The increase is largely accounted for by increases in the death rates of diseases of the heart (from 112 to 127), pneumonia and nephritis.

OHIO

Gynecologist Appointed.—The board of trustees of the University of Cincinnati, December 1, appointed Dr. Charles L. Bonifield as director of the gynecologic service in the medical school, to succeed the late Dr. Sigmar Stark, and Dr. Henry L. Woodward, acting director of the obstetric service; these were the only new appointments among the directors of services in the medical school; Dr. Carl Koch was appointed an assistant in pediatrics, and Dr. Henry Gruener assistant clinician in otolaryngology, outpatient dispensary. The Mendenhall Scholarship in Obstetrics for 1925-1926 was awarded to Dr. Robert L. Crudgington, resident in the obstetric service at the General Hospital.

Licenses Revoked or Suspended.—The Ohio State Medical Board has taken the action indicated in the cases of the following physicians during 1925:

Charles S. Emery, license revoked, April 6, 1925; reason, conviction of a felony, criminal abortion.

Cassius Minser, license revoked, July 14, 1925; reason, conviction of a felony, criminal abortion.

Addison D. Hobart, license revoked, July 14, 1925; reason, violation of the Food and Drugs Act.

Samuel S. Tomlinson, license revoked, Oct. 6, 1925; reason, conviction of a felony, criminal abortion.

Lloyd E. Overhulse, certificate suspended, April 7, 1925, for sixty days; reason, lending one's name to an illegal practitioner.

Orlo L. Mapes, certificate suspended, Oct. 6, 1925, for sixty days; reason, extravagantly worded advertising.

Charles A. Duff, certificate suspended, Oct. 6, 1925, for sixty days; reason, extravagantly worded advertising, and association with an unlicensed practitioner.

Milk Council Organized.—Dr. John E. Monger, director, state health department, has been appointed chairman of the Ohio Better Milk Council, on whose board of directors are representatives of the state medical association, Ohio Hospital Association, State Association of Graduate Nurses, Ohio Farm Bureau Federation, Ohio State Grange, Ohio Federation of Women's Clubs, Ohio Milk Distributors Association, the College of Agriculture of Ohio State University, the state department of agriculture, and the state department of public instruction. Among the objects of the council are to legally define pasteurization and to punish those who do not comply with the standard established; to determine the conditions surrounding the production and distribution of milk and to have adopted in places where not already adopted the regulations recommended by the state department of health concerning milk, and to recommend that special care be taken in the sterilization of all milk utensils by live steam.

Society News.—Drs. Hugh Cabot, Ann Arbor, Mich., Thomas McCrae, Philadelphia, Charles A. Elliot, Chicago, John F. Barnhill, Indianapolis, Abraham Zingher, New York, and Albert G. Mitchell and Martin H. Fischer, Cincinnati, addressed the Second Councilor District Society at the recent five-day session at Dayton. There was an average daily attendance of nearly 300 physicians from the district; Dr. William B. Quinn, Springfield, was elected president of the society, to succeed Dr. William H. Finley, Xenia; Dr. Arthur O. Peters, Dayton, was reelected secretary, and Dr. Herbert C. Haning, Dayton, reelected treasurer.——Dr. Roy G. Hoskins, professor and head of the department of physiology, Ohio State University College of Medicine, Columbus, addressed the Four-County Medical Society (Fulton, Williams, Defiance and Henry counties) at Wauseon on "Endocrinology and the Physician."——Dr. John M. Ingersoll, Cleveland, addressed the two hundred and third session of the Union Medical Association of the Sixth Councilor District at the College of Worcester, November 10, on "Infections in Nose, Throat and Ear, with a Few Practical Suggestions."

PENNSYLVANIA

Personal.—Dr. John D. Matz, Allentown, was elected president of the Alumni of the Medico-Chirurgical College, at the annual banquet in Philadelphia, November 19.——Dr. John M. Bertolet, Reading, having reached the retiring age, has resigned as a member of the general staff of the Reading Hospital.

Society News.—The fifth annual conference and exposition of hospital supplies and equipment will be held at the Hotel Schenley, Pittsburgh, April 13-15.——Dr. Arthur J. Davidson, associate professor of orthopedic surgery, Jefferson Medical College, addressed the December meeting of the Berks County Medical Society on "The Practical Consideration of the Diagnosis and Management of Joint Tuberculosis."——Dr. Charles H. Miner, state health commissioner, addressed the Lancaster County Health Association, December 16, at Lancaster, on "The Relation of the State Department of Health to the Local Boards of Health."——Dr. Richard J. Behan, Pittsburgh, addressed the Buffalo Academy of Medicine, November 25, on "Correlation of Experimental Research with Treatment in Cancer."

Philadelphia

Society News.—Among others, Dr. Myer Solis-Cohen addressed the Philadelphia Pediatric Society, December 8, on "Removing Bacterial Sites of Infection in the Treatment and Prevention of Endocarditis."

Medical Missionary Society.—The Pennsylvania Medical Missionary Society met, December 2, at the home of Mrs. Charles E. Pugh; about 150 members and guests of the society were present. Dr. Wilfred T. Grenfell gave an address on medical missionary work in Labrador.

Gifts of Hospital Beds.—George W. Nevil has given $5,000 to the National Stomach Hospital, Philadelphia, to endow a free bed in memory of the family of Joseph and Amelia Nevil. Our correspondent writes that Mr. Nevil has given fifteen other similar gifts creating free beds in other hospitals in Philadelphia.

First Pyorrhea Clinic.—With donations from several Philadelphians, a clinic has been established at 2009 Pine Street for the treatment of pyorrhea. It is said to be the first of its kind in this country and will be open to the public from 2 to 5 on Monday and Thursday. A nominal fee will be charged those able to pay.

TENNESSEE

Society News.—Dr. M. B. Hendrix, Memphis, was elected president of the Frisco Railroad Medical Association at a recent meeting in St. Louis.——The Memphis and Shelby County Medical Society voted recently to take no action on the offer of the American Birth Control League to send a lecturer to discuss contraception.

VIRGINIA

Personal.—Dr. Robert P. Cooke has been appointed county health officer of Accomack County. Dr. Richard R. Nevitte, Temperanceville, was elected president of the Accomack County Medical Society at the recent annual meeting.

Chiropractor Sentenced.—Rena M. King, a chiropractor of Richmond, was sentenced, November 21, to sixty days in jail by Justice Ingram on a charge of practicing without a license. On a previous occasion, Justice Ingram fined the defendant $50 and required a peace bond of $1,000 for twelve months. The case was appealed.

Funds for New Medical School.—President Alderman of the University of Virginia announced, December 9, that the General Education Board had appropriated $700,000 to the university for the erection of buildings and equipment for medical science and for properly relating the medical science to the hospital and clinical work already established. The gift is said to be without any further restrictions.

WEST VIRGINIA

Community Cooperation.—The twenty-four bed tuberculosis sanatorium, Eastmont, in Monongalia County, is nearing completion under the auspices of the County Tuberculosis Association. A site having been chosen on the Cheat River road, 3 miles east of Morgantown, the association held conferences with various organizations to obtain their cooperation, and when plans were complete, members of social and civic clubs cleared several acres of grounds; the bricklayers donated their services to lay the foundation; lumber and electrical companies donated materials; the lathers and the plasterers donated their services and some materials; the traction company extended their line to the sanatorium; organizations and individuals contributed several thousand dollars, and the Monongalia County Court appropriated $7,000 for maintenance. The sanatorium, now almost completed, has actually been erected by the community.

CANADA

Personal.—Dr. Alfred Desloges, formerly intern at the Hotel Dieu Hospital, Montreal, has been appointed a fellow in ophthalmology at the Mayo Clinic, Rochester, Minn.——Dr. Reginald S. Henderson of the Tranquille Sanitarium, Vancouver, who has been appointed medical officer for the Engineer Gold Mine, left, November 15, to take up his new duties.——Dr. William Egbert, Calgary, was sworn in as lieutenant-governor of Alberta, October 29, to succeed Dr. Robert G. Brett. Dr. Egbert formerly was president of the Provincial Medical Association and of the Calgary Medical Association.

Dissolution of Canadian Branches.—The council of the British Medical Association has given notice to all concerned of the following resolution passed by the council, October 21. The Canadian branches referred to will be deemed by the council to be dissolved as from June 1, 1926:

That, following on the adoption by the annual representative meeting, 1925, and extraordinary general meetings of the association, of articles of association as regards affiliation, and the terms of the affiliation of the Canadian Medical Association with the British Medical Association, the council, in pursuance of the power conferred on it by Article 15, do forthwith give notice to dissolve the following branches of the British Medical Association in Canada: Halifax; Nova Scotia; Montreal; St. John, New Brunswick; Saskatchewan; Toronto.

GENERAL

Society News.—Dr. Weston D. Bayley, Philadelphia, was elected president of the American Stomatological Association at the meeting in New York, November 16; Dr. George R. Satterlee, New York, president-elect; Drs. Joseph C. Bloodgood, Baltimore, and Oliver T. Osborne, New Haven, Conn., vice presidents; Dr. Robert H. Rose, New York, treasurer, and Alfred J. Asgis, D.D.S., New York, secretary.——The next annual meeting of the American Gynecological Society will be at Stockbridge, Mass., May 20-22, 1926.

Fellowships for Women.—The American Association of University Women announces fellowships which are open to American women, among which are the Sarah Berliner Research and Lecture Fellowship for women holding the degree of Ph.D., or D.Sc. The value of the fellowship is from $1,000 to $1,200, available for research in biology, chemistry or physics. The association also announces that the Alpha Xi Delta fraternity offers a fellowship of $1,000 for graduate work in the field of medicine or mental science available for the year 1926-1927; it will be awarded by the committee on fellowships of the American Association of University Women. The association offers a $1,200 fellowship to carry on research in some country other than the fellow's own during the academic year 1926-1927. The stipend will be paid half-yearly in advance, and the work can be done in any important university or institution. Applications should be made to the chairman on fellowships, Prof. Agnes L. Rogers, Bryn Mawr College, Bryn Mawr, Pa.

New County Society Presidents.—The following have recently been elected president of the county medical society indicated: Dr. Nelson M. Rhodes, Champaign County Medical Society, Urbana, Ohio; Dr. Lee E. Shafer, Scott County Medical Society, Davenport, Iowa; Dr. Reuben A. Moffett, Knox County Medical Society, Knoxville, Ill.; Dr. Clarence A. Good, Buchanan County Medical Society, St. Joseph, Mo.; Dr. John F. Dunn, Arlington, Ky., Carlisle County Medical Society; Dr. James A. Elliott, Battle Creek, Mich., Calhoun County Medical Society; Dr. Harry A. Neiswander, Pandora, Ohio, of the Putnam County Medical Society, and Dr. Willet W. Binion, Benevolence, Ga., of the Randolph County Medical Society; Dr. Frank A. Fuller, Jacksonville, Texas, the Cherokee County Medical Society; Dr. Francis M. Hartsook, the Vermilion County Medical Society, Danville, Ill.; Dr. Melville F. Boulden, the Clinton County Medical Society, Frankfort, Ind.; Dr. Herman C. Grim, Trumbauersville, Bucks County Medical Society, Pennsylvania; Dr. David Ward Scanlan, Atlantic City, N. J., Atlantic County Medical Society (reelected).

News of Epidemics.—The epidemic of measles in Yonkers, N. Y., December 1, had amounted to 800 cases with five deaths in children under 3 years of age; there were 300 cases in the city on that date.——The health officer of Norristown, Pa., reported a measles epidemic in November of forty-nine cases.——The city health department of Dallas, Texas, reported the closing of the kindergarten in the Fannin school, November 28, on account of an outbreak of scarlet fever.——The Seventh Ward school of Breensburg, Pa., was recently closed on account of an outbreak of scarlet fever and will not reopen until after the holidays.——The city health officer at Oshkosh has excluded from attending high school about twenty male students, on account of an outbreak of scabies; about the same number of girl students was excluded for the same reason.——The health commissioner of Baltimore announced, November 28, that 160 new cases of measles had been reported during the previous week, with two deaths.——Hardin County, Ohio, has had an outbreak of thirty cases of scarlet fever, mostly in Ada, Alger and McGuffey; eighteen cases were still under quarantine, December 1.

Bequests and Donations.—The following bequests and donations have been announced recently:

The Broad Street, Mount Sinai, Mount Lebanon, Presbyterian and St. Vincent's hospitals, all of New York, each $30,000, by the will of the late Mrs. Mathilde G. Sterne, payable after the death of a daughter.

The Southside Hospital, Bayshore, $10,000, and on the death of a daughter a similar amount to St. Vincent's Hospital, the Home for Incurables, Roosevelt Hospital and New York Dispensary, all of New York, by the will of the late William H. Wickham.

The three hospitals for crippled children in Minneapolis and St. Paul, $30,000, by the will of a crippled newsboy, who died in November.

The College of Physicians, Philadelphia, $10,000, by the will of the late Dr. Richard H. Harte, who specified in his will that the income from half of the amount to be used to purchase books and journals for the library, the collection acquired to be known as the Richard H. Harte Book Fund, and that the remainder be set aside to defray the expense of dinners to guests at various meetings.

The Brooklyn Home for the Blind, Port Jefferson, L. I., $1,500, by the will of the late James Burns.

The Hebrew Orphan Asylum, Montefiore Hospital for Chronic Diseases, Mount Sinai Hospital, New York, each $2,000, by the will of the late Solomon Libman.

Mount Sinai Hospital, New York, $1,000, by the will of the late Ida Held.

The New York Hospital, Hospital for Ruptured and Crippled, and New York Skin and Cancer Hospital, each $25,000; the New York Dispensary and St. John's Guild, each $15,000, by the will of Charles H. Rhinelander, who died in 1916, and whose residuary estate was recently accounted in court.

The New York Skin and Cancer Hospital, $1,500, by the will of the late Edward F. Gordon.

The Nursing Sisters of the Sick Poor, New York, $100, by the will of the late Anna A. Boyle.

St. Luke's Hospital, New York, $5,000; St. Mary's Free Hospital for Children; the Knickerbocker Hospital; the Harlem Eye and Ear Hospital, and the Home for Incurables, New York, each $3,000; the Misericordia Hospital and the Society for Relief of the Destitute Blind, each $1,000, by the will of the late Mary C. Van Cott.

The Jewish Hospital, Philadelphia, $5,000 by the will of the late Charles Alexander, to endow a bed to be known as the Charles and Fanny S. Alexander bed.

Kensington Hospital for Women, Philadelphia, $1,000 by the will of Mr. Ellis, who died at Orlando, Fla., last April.

The Newark Memorial Hospital, Newark, N. J., $5,000, by the will of the late Eliza L. Koegel.

Endowments and the Community Trust.—A group of physicians issued a statement, December 10, urging that endowments for medical research or the treatment of the sick or for medical education be kept free from narrow limitations and rigid conditions. It was said that the changing status of medical education and the advance in medical science make "frozen endowments" of particular concern to the medical profession. In thirteen years, institutional orphanages have increased in the United States at the rate of one about every fifteen days, while the supply of orphans to fill them has shown signs of diminishing. Without deprecating the excellent work of many "asylums," the statement adds, it appears that changes in the problem of caring for dependent children has tended to lessen the need for new orphanages as compared with other social needs. Once endowments take rigid form for some specific purpose, it becomes exceedingly difficult to recast them. To meet the problem arising from "frozen endowments," there has been instituted the plan of the Community Trust, which provides a method of bringing together funds of any size, gives them permanent administration and preserves them from becoming "frozen." Each fund, large or small, constitutes an independent memorial and is placed for investment with any one of various national banks

or trust companies, and the expenditures or income from each is supervised by a central distribution committee. While the statement outlines the object of the Community Trust to physicians, a more detailed description can be obtained from Dr. Walter B. James, 7 East Seventieth Street, New York, a member of the distribution committee. The statement is signed by Drs. George Emerson Brewer, Samuel A. Brown, George W. Crile, Charles L. Dana, D. Bryson Delavan, Arthur B. Duel, Emanuel Libman, Charles H. Mayo, William J. Mayo, James A. Miller, Bernard Sachs, Bentley Squier, George D. Stewart, William G. Thompson, Linsly R. Williams and Walter B. James.

FOREIGN

Medical Students in Germany.—The *Münchener medizinische Wochenschrift* states that the total number of male medical students in German universities has declined from 15,500 in 1913 to 7,196 in 1925, while the number of women studying medicine has increased from 868 in 1913 to 1,321 in 1925.

Fourth Autumn Dinner.—About 300 members and guests of the British Medical Association assembled in the Great Hall of the association's new home, October 21, for the fourth autumn dinner, which was in the nature of a house warming. The chairman of the council, Dr. Robert A. Bolam, occupied the chair, with the retiring president, Mr. J. Basil Hall, principal guest, on his right. Among those present were Sir William B. Leishman, director of the Army Medical Service; Vice Marshal D. Munro, director, Royal Air Force Medical Service; Sir St. Clair Thompson, president, Royal Society of Medicine; Miss Ivens, president, Medical Women's Federation; Sir Frederick N. Mott, president, Medico-Psychologic Association; Dr. George F. Buchan, president, Society of Medical Officers of Health; Mr. P. S. Roswell, president, Pharmaceutical Society, and Mr. J. H. Badcock, president, British Dental Association.

Beriberi Increasing in Japan.—According to the *Japan Medical World,* beriberi seems to be increasing in the Japanese army and navy. Official statistics covering the ten years ending in 1923 show that the number of cases of beriberi in the army in 1914 was 3.43 per thousand, and in 1923 10.47. The number of deaths per thousand in 1914 was 5.85; in 1923 it was 0.94. The number of beriberi patients in the navy in 1914 was 1.36 per thousand and 2.40 in 1923. These figures are small, compared with the incidence of beriberi from 1878 to 1883, when it was from 230 to 390 patients per thousand in the navy. The combined diet of rice and barley was adopted by the navy in 1886 and in the army in 1919. A society for the investigation of beriberi has been organized in Tokyo at the instance of Dr. T. Irisawa, former dean of the Imperial University Medical College, which will hold two general meetings a year. Communications to the committee should be addressed to the society at the Tokyo Imperial University Medical Department, Tokyo.

Personal.—Prof. Rudolf Kraus has been made president of the newly founded Vienna Society for Microbiology.——Subscriptions are being collected for the purpose of presenting a medal to Professor Mauclaire, Paris, on his approaching retirement from the Pitié. A bronze replica of the medal will be given for each subscription of 50 francs or more. The treasurer of the fund is M. Arnette, 3 rue Casimir-Delavigne, Paris.——The *Presse médicale* mentions the departure for the United States and Canada of Dr. J. Forestier, Aix les Bains, who has been invited by the American Radiologic Association to deliver a course of lectures on the work he has done with Dr. Sicard on iodized oil.——Dr. H. Hartmann has been reelected president of the A. D. R. M. (Association pour le développement des relations médicales) at Paris. He reports great progress in establishing postgraduate courses, and arranging for interchange of professors with other countries.——Dr. L. M. Pierra, 12 rue de Babylone, Paris, is the secretary of the international congress of the medical press of Latin nations, to meet at Paris in 1926. The main topics to be discussed are unification of terms and bibliography, rights in literary property, and the work of the medical press in organizing and reporting medical congresses. ——The prize of the Marcel Benoist endowment, Zurich, has been awarded this year to Prof. H. Zangger, director of the medicolegal institute, Zurich, for his recently published work "Vergiftungen" (Poisonings).

Deaths in Other Countries

Dr. **George Reid,** formerly president of the Society of Medical Officers of Health and president of the Section of Medical Sociology of the British Medical Association, at Stafford, November 6, aged 70.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 21, 1925.

The Health of School Children

Sir George Newman, chief medical officer of the board of education, has issued his report for 1924. Of about 1,500,000 school children inspected during the year in areas other than London, 20 per cent. were found to require medical treatment in some form, and a large number of others were found with defects which necessitated their being kept under observation. Considerable space is devoted to the health of the rural child, which is less satisfactory than that of the town child. It is pointed out that children cannot grow if their food is only bread and butter and tea, if their bodies are not rightly exercised, and if they live in cold and stuffy homes and schools. Among reforms advocated are that children under 6 should be discouraged from school attendance if the distance from school is excessive (or in winter during inclement weather); a sufficient midday meal should be secured for the child who cannot return home for it; facilities for the changing and drying of wet boots and clothing should be available in every rural school; insanitary rural schools should be made sanitary, and voluntary workers should be enlisted to organize education in mothercraft, domestic economy and child nurture and management, regarding which there is much ignorance and some neglect. The following table, which related to London, affords an idea of the incidence per thousand children inspected, of the various diseases of school children:

	1923	1924
Defective vision	62	62
Nose and throat disease	43	51
Ear disease	10	11
Lung disease (nontuberculous)	9	12
Skin disease	13	13
Squint	8	9
Eye disease	8	9
Anemia	8	9
Deformities	4	7
Defective hearing	5	6

In ten years the mortality among children from pulmonary tuberculosis has fallen by about 46 per cent., and from non-pulmonary tuberculosis by about 42 per cent., while the number of new cases of both forms has substantially diminished. When compared with the statistics for the population of all ages, these figures indicate that children offer a particularly hopeful field for specific antituberculosis measures and that a substantial measure of success, partly attributable to such measures, has already been obtained.

The Health of London

The report of the health officer for London, Sir William Hamer, for 1924, has just been issued. The death rate was 12.2 per thousand, which is slightly higher than in 1923, when the rate was 11.4, the lowest ever recorded. The infant mortality was 69 per thousand births, as compared with 61 in 1923, the latter being also a record year in this respect. The small rise in the death rate may be attributed to the prevalence of measles early in 1924 and to a slight increase in the deaths from influenza, bronchitis and pneumonia. The mortality from diarrhea and enteritis was lower than in 1923. The registrar-general estimates the total population of the administrative county of London in the middle of 1924 at 4,586,000. The births in 1924 numbered 85,147, being 6,515 fewer than in 1923. The birth rate was 18.6 per thousand, as compared with 20.1 in 1923 and 20 in 1922. During the last four years the number of births in London has declined by about 4,800 yearly. The rate has fallen continuously during the last fifty years at a rate of decrease of

about 1.42 per thousand of population every five years. In the same period the marriage rate has remained much the same. There would have been a considerable decrease in the marriage rate but for the large increase of marriage during the war years. The decline in the marriage rate during 1921-1925 is too small to have played more than a negligible part in the concurrent fall of the birth rate. The decline in vaccination is such that Sir William Hamer considers the time not far distant when a serious epidemic can no longer be prevented. Deaths from cancer totaled 6,483, compared with 6,346 in 1923.

Links Between Mind and Matter

Sir Oliver Lodge, F.R.S., delivered the first of a series of lectures established by the British Science Guild as means of directing the attention of the public to the influence of science on human progress. Sir Oliver Lodge is the most striking example in this country of an eminent physicist who believes in psychic phenomena. His subject was "The Link Between Mind and Matter." He explained that he meant the impenetrable uniting ingredient or cosmic unit, which connected the otherwise dissociated or dissevered atoms of matter and enabled them to act on one another, even from a distance. This ingredient was essentially radiation—a disturbance in the ether or in space which traveled at one absolute velocity, which journeyed without loss or dissipation of energy, and which produced even at enormous distances its singular and striking results. "We are down among the foundation stones of reality," he said, "the laws which make matter possible, the laws which perpetuate the atoms of which our own bodies are composed. There are those who think that these material bodies represent ourselves, our personality, our memory and our character. If they can work out things on that hypothesis, by all means let them do so. But let them take the whole of the facts into account. The atoms are not isolated, and we are not isolated. Shall there be a link between atom and atom and not between mind and matter? The link may perhaps be traced through some further developments of physics. We are only beginning to understand the way in which matter acts on matter. We have not yet brought mind into the scheme. There must be a link between mind and matter and mind, and a corresponding link between mind and matter; for undoubtedly they do interact. There may be a link between mind and mind apart from matter. I think there is, but we are entering the region of speculation. Until we take the ether or radiation into account, our categories are incomplete." Sir Oliver Lodge concluded: "We cannot be satisfied with matter alone. We are bound to have a link between matter and matter, and if we keep our eyes open we shall find many other links, some of them suspected, some unsuspected."

Light for Animals in the Zoological Gardens

In a previous letter (THE JOURNAL, October 31, p. 1412), the provision of ultraviolet rays for monkeys by means of quartz globes in connection with electric light and the use of vita glass, which is transparent to the ultraviolet rays of the sun, was described. As this is a new field for the application of light therapy, some further information will be of interest. In the new reptile house to be erected at the London Zoo, modern devices for the variable heating of the cages, ventilation and drainage will be used. The roof lights, by which daylight will shine directly on the reptiles, are to be of vita glass, and there will be full provision for artificial sunlight from quartz incandescent lamps or a similar electric plant. Already in a temporary installation in the tortoise house, it has been found that iguanas, which mope in winter, even if kept sufficiently warm, respond at once to the light of quartz globes, and the most efficient plant to secure similar results will be designed. Dr. Leonard Hill, director of the department of applied physiology and hygiene of the Medical Research Committee, whose work on light therapy is well known, advised during the planning of the experimental monkey house and has promised to assist with the lighting designs of the reptile house. In the lion house a new roof with vita glass lights and an improved system of ventilation are being installed.

The General Medical Council

The General Medical Council has recently been the subject of abuse from the supporters of osteopaths and other irregular pretenders to the healing art, including many well known men, such as Bernard Shaw. Because in the course of its duties it has to do such things as remove from the register an anesthetist for working with an unqualified bonesetter, it is charged with being actuated by selfish trade-unionism. The president, Sir Donald Macalister, in opening the one hundred and twenty-second session, therefore fitly described the function of the council as prescribed by law. He pointed out that the council was a public department with judicial functions defined by statute and by the courts, working under the privy council and subject to supersession by the privy council if it defaulted. It was not vested with any power or duties for the protection of the medical profession other than those implied in the medical act of 1858; namely, "That persons requiring medical aid should be enabled to distinguish qualified from unqualified practitioners." For that purpose, obviously a purpose of public utility, the Medical Register was set up. The council's duty to the public was simply to insure that no one who was not legally qualified by adequate professional training and testing should get on the register, and that no one who by his conduct had forfeited his claim to be entrusted with the status of a legally qualified practitioner should remain on it. The legal privileges of the qualified practitioner, as compared with the unqualified, were few. He had no monopoly of practice, such as the law conferred on dentists and midwives in their specialties. The privileges were rather trusts than advantages. Thus, only the qualified could legally grant a valid medical certificate of illness or death, or legally prescribe a dangerous drug. These privileges were clearly based on the assumption that members of the profession might be trusted to deal honorably with the public. Whoever, therefore, abused that trust by misusing the privileges his status conferred, or by covertly enabling others for gain to elude their legal disabilities, was chargeable with misconduct "in a professional respect," and made himself liable to the penalty of removal from the register. As the law stood, he was then as free to practice as if he had not been registered and the public was as free to employ him, if it thought fit. But the council had neither the power nor the responsibility of controlling his conduct thereafter. The council was frequently confounded with voluntary organizations and societies of physicians, constituted for scientific and professional purposes. But the Council had no professional interest to serve other than the efficient performance of its specific duties laid on it by law in furtherance of the public welfare.

The Practice of Osteopathy

That the craze of osteopathy recently introduced into this country has attained some popularity is shown by the fifth annual meeting of the council of the Osteopathic Clinic, at which it was declared that during the last twelve months 6,000 treatments had been given. Lord Deehurst, speaking of the attitude of the controlling bodies of the medical profession against legislation sought by "qualified osteopaths," said that the Medical Council did not want osteopaths to be recognized because physicians could not practice osteopathy themselves, not having the necessary qualifications. They

wanted osteopaths to take medical degrees first and even then would not give any guarantee that they would recognize the work of osteopaths. It would help osteopaths if they could call in the services of anesthetists and medical specialists. He could vouch for several cases which had been cured by osteopathy after having been given up by physicians.

PARIS

(From Our Regular Correspondent)

Nov. 23, 1925.

Kleptomania

M. Antheaume's attitude toward kleptomania is that kleptomania does not exist. So-called kleptomaniacs (mostly women) are in reality only common, ordinary thieves, in whose favor a plea of irresistible impulse is set up if they happen to belong to the well-to-do classes of society. Kleptomania should be eliminated from psychiatric nosology and should cease to be considered a valid excuse for an ordinary misdemeanor. It goes without saying that we must distinguish from so-called kleptomania the impulses to steal that may be presented by certain evident psychopaths, imbeciles, epileptics, and persons suffering from general paralysis or various forms of delirium. Before the Société de médecine légale, several other psychiatrists stated that they had never discovered any authentic cases of an irresistible impulse to steal.

So-called kleptomaniacs rarely operate in stores in which a strict watch is kept. They never seek to return of their own accord the stolen article. When they are finally caught, they never themselves invoke at first any pathologic defect as an excuse. That is always a secondary thought after their family or their lawyer has advised them to enter a plea of irresistible impulse. Antheaume proposes, as remedies: (1) mental prophylaxis through the organization in the large stores of Paris, by their initiative and at their own expense, of an effective perfectly apparent system of surveillance, which would leave pseudokleptomaniacs no hope of perpetrating a theft without being discovered; (2) intimidation of culprits by immediate arrest and conviction with suspension of sentence for the first offense, with or without the opinion of a psychiatric expert; (3) conviction and execution of the sentence in case of recurrence; (4) in certain cases in which it seems justified, the publication of convictions in the public press.

A Novel Source of Lead Poisoning

M. Bodron, public health commissioner in Brest, has published in the *Presse médicale* an article on a novel source of lead poisoning. Last April, the bureau of public health of Brest was faced with an epidemic of lead poisoning, the cause or source of which was unknown. The thirty-two patients, with three exceptions, all lived in the same section of the city (port de commerce), and inquiry brought out that all bought their bread of the same baker, and three persons employed in the bakery had been ill. The evidence pointed, therefore, to the bakery as the source of the intoxication. Examination of the sewer connections and of the water from the boiler or caldron gave a negative result. It was discovered, however, that the baker was using to heat his oven (a direct heating system) wood that had been obtained by breaking up old boats. Examination of the wood revealed that it was covered with paint that was rich in lead salts. The origin and the cause of the epidemic were thus demonstrated. In further substantiation, it was learned that the three patients who did not reside in the affected district were in the habit of eating bread that came from the incriminated bakery. In view of these facts, the mayor of Brest issued a decree, which was countersigned by the prefect of the department of Finistère, prohibiting within the limits of the commune of Brest the use of wood of demolished ships for baking. Legislation against the use, for baking, of wood derived from old boats is, however, not entirely new, for there were two ordinances dealing with the subject, issued in the department of the Seine, dated 1877 and 1898, respectively. The council of public health of the Seine has on several occasions, notably in 1914, rejected demands coming from dealers that the ordinance of 1898 be repealed. The council persists in refusing to permit the use, for baking, of "demolition wood," of whatever kind or origin. The oven used by the baker in question was heated by the direct heating system, but ovens with indirect heating systems are also dangerous when painted wood is used, by reason of the volatility of the lead salts and the readiness with which they become reduced to metallic dust under the action of charcoal. These vapors condense rapidly on the cold surface of the dough just as it is put into the oven.

Oleothorax

In a recent communication to the Academy of Medicine, G. Küss referred to the value of the method of oleothorax, as recommended by M. Bernou, in the treatment of pulmonary tuberculosis by artificial pneumothorax. Küss gave the precise indications for the use of oleothorax. It is advantageous during certain pleural effusions which so frequently complicate artificial pneumothorax. Oleothorax diminishes considerably the harmful effects of these effusions and facilitates their cure. It prevents annihilation of the partial pneumothorax in certain cases wherein continuance of this treatment is desirable. Furthermore, it makes possible permanent and effective compression of certain dense lesions that would resist compression by air or gas. Küss has invented a safe device for production of oleothorax. This device, which he presented recently before the Société d'études scientifiques de la tuberculose, has, among other advantages, that of permitting the measurement of intrathoracic pressure of the liquid petrolatum introduced. Küss holds that oleothorax deserves to be used more widely in phthisiologic practice.

ITALY

(From Our Regular Correspondent)

Oct. 30, 1925.

The Angelo Mosso Institute on Mount Rosa

The Angelo Mosso Institute, established on Mount Rosa, at an elevation of 3,000 meters above sea level and maintained for research on the physiologic effects of mountain regions, resumed operations in July. The institute has established a branch investigating center at the Margherita Lodge, which is 4,559 meters above sea level. The director of the institute, Dr. Amedeo Herlizka, professor of physiology in the University of Turin, is making a special study on solar radiation in high regions. Research students gathered here include Professor Morpurgo, who is investigating the effects of high altitudes on breathing; Professor Azzi, who is studying the phagocytic capacity of the blood in fatigue; Dr. Verdina, who is investigating the blood serum of fatigued persons from the immunologic point of view, and Dr. Arnaudi of the Serologic Institute of Milan, who is giving especial attention to the anaerobic bacterial flora of Monte Rosa. Among the foreign investigators may be mentioned Dr. E. Hung of Buenos Aires, who is conducting researches on the permeability of the skin of the frog, and Dr. H. Melchior of Berlin, who is pursuing botanic studies.

Interest of North and South America in Medical Studies in Italy

The University of Florence has received from Argentina 50,000 liras collected by Professor Dessy. The interest is to be used as the Guido Banti prize for researches in pathologic anatomy.

Prof. Aurelio Bianchi has sent 10,000 liras from Buenos Aires. The gift was sent to Professor Silvestrini, director of the clinic of internal medicine at the University of Perugia, and is to constitute a prize for the best research on phonendoscopy, to be presented to the university before June, 1926.

The Rockefeller Foundation is about to establish in Italian institutions a number of graduate fellowships in biologic or clinical subjects. Each student will be allowed 1,000 liras per month. The fellowships will extend to 1928. Appointments are for one year but are renewable for a second year. From those students who are successful in their researches, a number will be selected to pursue courses in other countries.

The First International Congress on Malaria

The first International Congress on Malaria, referred to in a previous letter, was held at Rome, October 4-6. The United States was represented by Dr. Hugh S. Cumming, Surgeon General and head of the U. S. Public Health Service; Colonel Russell of the Rockefeller Foundation; Drs. Hackett, McCallum, Thayer, King and Barber; Professors Strong, Bass, Fricks, Deeks, and others. The delegates from France were Drs. Brumpt, Lasnet, Marchoux, Mesnil and Sergent. The British representatives were Drs. James and Dale. Germany was represented by Professor Nocht; Belgium and its colonies, by Drs. van Campenhout and Broden; Brazil, by Dr. Humberto Gotuzzo; Colombia, by Dr. Luis Cuervo Marquez; Egypt, by Dr. Ahmed Bey Helmi; Hongkong, by Dr. McKenny, and the Netherlands by Dr. N. H. Swellengrebel. Dr. Reichmann, chairman of the health section of the League of Nations, was also present. The Italian delegation consisted of Senators Marchiafava and Sanarelli; Professors Ascoli, Bignami, Dionisi, Gosio, Sella, Bastianelli, Nazario, Alessandrini, Gualdi and Messea, and others. The government was represented by Mussolini, Federzoni, Suardo, the prefect of Rome, the royal commissioner of Rome (Senator Cremonesi), and others.

Dr. Massimo Sella of Rovigno discussed the results of anti-anopheles prophylaxis by the use of top minnows (*Gambusia*), imported from the United States, which destroy the larvae of the anopheles mosquito. Communications were presented by Professors Ghiron, Fontano, Neri, H. Durk (Germany), Bignami, Bastianelli and Monti. Professor Schilling spoke on the "Interpretation of the Significance of Biologic Conditions in the Blood of Malarial Patients," and papers were presented by Professors Etienne, Sergent, James, Brodel, Bentley, Nocht, Sadi de Bonen and Marzinowsky.

Professor Perez of Argentina proposed that an international institute against malaria be established in Rome, under the patronage of Italy, but with the aid of all nations, and that the first meeting be held in 1928. The Italian government accepted the proposal, and invited the concurrence of other governments interested.

Membership in the Royal Academy of Lynxes

At the recent election held at the Royal Academy of Lynxes, the following nationalists were chosen as members: Aldo Perroncito, professor of pathology at the University of Pavia, and Luigi Sabbatani, professor of pharmacophysiology at the University of Padua. As foreign members were elected: Lodovico Aschoff, Frederico Küster and Enrico Lebesgue.

Competitive Prizes Offered by a Scientific Academy

At the annual session of the Accademia dei Lincei, two new prizes in the field of vocational training and guidance were announced. Both prizes were established in the name of Gustavo Ragnoli and consist in gold medals valued at 5,000 liras each. The funds were furnished by the Istituto d'igiene, previdenza e assistenza sociale. One prize will be awarded to the commune, learned society or individual who presents the best bio-anthropologic study of a group of at least fifty elementary or grammar school pupils. This study must extend over a period of at least one year, and will be directed toward evaluating the physical and mental qualities of the pupils from the point of view of vocational guidance. The other prize will be bestowed on the economic or industrial society or on the indivdual that shall establish either directly or in cooperation with specialists a medical service for the selection of workmen, especially apprentices, on the basis of their physical and mental aptitudes. Competitors will be given two years in which to complete their work.

Modifications in the School Reforms Instituted by Ex-Minister Gentile

As previously mentioned, the minister of public instruction, Senator Gentile, established, among other things, the state examination for promotion in school and also for securing the right to practice a given profession after a school diploma has been obtained. While the desire to raise the standards of education met with approval, in a general way, there were criticisms of many of the details of the reforms. Senator Fedele, the present minister of public instruction, has modified some of the most bitterly opposed innovations, especially with reference to higher instruction. For example, assistants in universities may be transferred from one institutoin to another without reexamination. University competitive examinations will be open to all. The board of examiners, the makeup of which has been changed, will select three competitors who are capable of filling the chair. The faculty in which there is a vacancy will then select from the three candidates the future incumbent. Half of the superior council will be elected by the professors and half chosen by the minister of public instruction. On expiration of the terms of half of the present members of the superior council, their successors will be chosen by the professors.

Hygienic Propaganda Disseminated by Means of the Radiotelephone

The Unione radiofonica of Rome has broadcast a series of short lectures by Dr. Giovanni Pugliese on medicine and hygiene. One of the first subjects was "Errors and Preconceived Ideas on Tuberculosis." Briefly, the speaker explained tuberculous contagion and prophylaxis, emphasizing protection of children, the educative value of the sanatorium and the dispensary, and the absurdity of opposition to these beneficent institutions.

The Sanitary Council in the Colony of Eritrea

By a recent decree, the governor of the Italian colony of Eritrea on the Red Sea has created a medical council to deal with sanitary and hygienic matters. The sanitary council must keep the governor informed of health conditions in the colony and of the functioning of the various health services. It must present to the governor proposals as to the best hygienic and prophylactic measures to combat infectious diseases, and also submit suggestions with regard to the sanitary service. Dr. Ritucci, major in the army medical corps, has been appointed chief public health officer.

The New President of the Italian Red Cross Society

Senator Giovanni Ciraolo, for the last ten years president of the Italian Red Cross Society, has asked Prime Minister Mussolini to accept his resignation in order that he may devote all his time and energy to his project of an international league of public aid societies. Mussolini has accepted the resignation, at the same time appointing Senator Ciraolo a delegate to the League of Nations. The Marquis Carlo Centurione Scotto has already been inducted into office as the new president of the society.

BUDAPEST

(From Our Regular Correspondent)

Nov. 7, 1925.

The Modern Surgical Treatment of Pulmonary Tuberculosis

Dr. Nicholaus Roth, assistant at the university clinic, lectured before the Royal Medical Society on the modern surgical treatment of pulmonary tuberculosis. He said that this is the most important chapter in the progress of the medical sciences. A patient regarded as lost, not so long ago, can now be saved by surgical intervention. To be sure, the proper selection of cases requires great experience. The principle of surgical treatment is to place the sick lung at absolute or relative rest. Experience showed that tuberculous joints healed when put out of action. Experiments with immobilization of the sick lung were based on this assumption. Collapse therapy—this is the generally accepted term for it—may be total or partial. Collapse promotes cicatrization. The walls of cavities collapse if they are not exceedingly rigid, and if they are not fixed by adhesions to the parietal pleura. In the collapsed lung, circulation of blood and lymph is checked. In consequence of this the toxins and germs remain in loco. Thus can detoxication and the beginning of cicatrization be explained.

Surgical treatment is applied in three main ways: (1) artificial pneumothorax; (2) section of the phrenic nerve, and (3) extrapleural thoracoplasty. These can be performed independently or can be combined.

Indications for artificial pneumothorax are the following: (1) Severe, one-sided cirrhotic processes without adhesions. The prognosis of these cases is good. (2) Severe, one-sided, acinous, exudative and lobular caseous processes. The prognosis of these is less favorable than that of the former. (3) Moderately severe, progressive exudative processes. (4) Persistent hemorrhages.

Contraindications: (1) Extensive changes in the other side. It is well-nigh impossible to adhere strictly to this provision, because rarely is the other side entirely sound, and in some of these cases pneumothorax is indicated on relative grounds. For example, if partial collapse of the worse lung does not excite activity in the other side, complete collapse may be brought about. Thus successful procedures are described in the literature in which alternate compression was practiced. (2) Cases of caseous pneumonia. These are unsuitable for pneumothorax because the infiltrated tissues are unable to contract. (3) Other contraindications are extensive pleural adhesions of the other lung, chronic bronchiectasis, bronchitis, emphysema, asthma, rigidity of the chest, decompensated heart disease, intestinal tuberculosis, spondylitis, nephritis, nephrosis and diabetes. A frequent complication of artificial pneumothorax even if performed with the greatest precaution is a pleuritic exudative process. Some authors say, however, that exudates promote immobilization, and probably they do stimulate cicatrization. An undoubted disadvantage of pneumothorax is its excessive duration; on an average, two years. This, however, is not of great moment in cities, where patients may call on their physicians. Pneumothorax therapy has come to occupy its deserved place in our fight against tuberculosis. The initial exaggerations have entirely ceased.

By section of the phrenic nerve on one side the corresponding half of the diaphragm is paralyzed; the cone of the diaphragm forces itself into the pleural cavity and partially compresses the lung, chiefly the lower lobe. The section must be repeated several times, because the cut ends of the nerve grow together in a relatively short time. To do away with this, a portion of the distal part of the nerve is removed. The incision is made at the outer edge of the sternocleido-mastoid muscle, close to its lower attachment. It is not easy to find the delicate, thin nerve, superimposed on the scalenus muscle. Roth has seen the phrenic nerve confounded with a piece of fascia and has seen injury of the jugularis.

Indications for section of the phrenic nerve are as follows: (1) Circumscribed tuberculosis of the lower lobe. (2) Severe, moderately progressive, feverish processes, involving mostly one side and in which pneumothorax was not feasible because of adhesions. (3) Advanced processes involving both sides. Patients so affected cannot be cured, but their condition can be alleviated and, as Brunner says, it would be regrettable not to improve the patient's condition by an operation which, in general, is so harmless. (4) The most extensive field for phrenicotomy is severe, less progressive, subfebrile, exudative tuberculosis confined mostly to one side and in which pneumothorax has failed. If the patients feel better after this operation, thoracoplasty, in addition, is to be recommended. (5) It may be performed as an adjuvant to thoracoplasty, in cases of productive, cirrhotic, cavernous phthisis, the elimination of abdominal breathing promoting lung rest. (6) In cases of cirrhotic tuberculosis and pleural adhesions. If these lead to excessive contraction, the heart may be impaired in its function by the continuous dragging. The relaxation following paralysis of the diaphragm leads to cessation of this symptom. (7) It might be considered as life saving in cases of dangerous hemoptysis, in which pneumothorax cannot be performed. (8) In cases of artificial pneumothorax in which collapse of the lower lobe is impeded by fibrous adhesions. (9) As the completion of artificial pneumothorax, if there is no occasion for reinjection of gas.

Roth's experiences with this method lead him to conclude that phrenicotomy is a good measure, but we have to be very cautious not to transgress the limits of its indications. We must bear in mind that it cannot replace pneumothorax, and Roth would regard it an error to perform it in cases in which pneumothorax is possible. In one single instance he could justify this; namely, if, for financial reasons, the lengthy pneumothorax treatment is not practicable. We must not forget that pneumothorax, though admittedly of long duration, leaves no permanent traces, while the sequela of phrenicotomy, paralysis of the diaphragm, is irreparable.

The third surgical method is extrapleural thoracoplasty. This is a heroic operation, involving paravertebral resection of the tenth and eleventh ribs. Its indication is clear from what has been said. It is chiefly indicated in adhesive cirrhotic processes, but its relative indications, mentioned above, are not to be neglected. Roth has seen wholly hopeless cases become afebrile and patients regain capacity for work. All three methods that cause collapse may be combined.

Roth gives only a short sketch of this therapeutic method but it denotes a tremendous advance. The hygienic, dietetic, climatic, sanatorium treatment is pushed into the background. Our ideal is chemotherapy. Even this may be not very far distant.

Regulations on "Patent Medicines"

A regulation recently promulgated by the ministry of public health and sanitation requires that no person shall sell or offer for sale any "patent medicines" within the territory of Hungary until a full statement has been deposited with the minister of public health, showing the several ingredients contained in the medicine, and the quantity or proportion of such ingredients. At first it was proposed to make it compulsory to publish the composition on the label; but, owing to the opposition of certain manufacturing firms, this intention was, unfortunately, abandoned. Moreover, it is ordered that the label of every "patent medicine" containing poison shall be distinctly marked with words stating that fact. The penalty for breach of either regulation is a fine not exceeding ten million crowns; that is, about $150.

Marriages

JOSIAS BENJAMIN HIBBETTS, JR., Nashville, Tenn., to Miss Miriam Burkloe Brown of Baltimore, September 29.

SAMUEL FITZSIMMONS RAVENEL, Greensboro, N. C., to Miss Katherine Parr Brown of Baltimore, September 29.

JOHN HARVEY GRAFF, Memphis, Tenn., to Miss Elna Lucie Rasmussen of Sidney, Mont., September 22.

JABEZ NORTH JACKSON to Mrs. Florence Hinkle Storey, both of Kansas City, Mo., October 28.

BRUCE L. FLEMING, Philadelphia, to Miss Estelle Leedrop of Phillipsburg, N. J., in October.

LINDSAY S. MILNE to Miss Marian Young, both of Kansas City, Mo., December 15.

HARRY S. ARKIN, Chicago, to Miss Irene H. Kraus of New York, November 18.

Deaths

Nathan Edwin Brill ✠ New York; Medical Department of the University of the city of New York, 1880; professor of clinical medicine, Columbia University College of Physicians and Surgeons since 1910; member of the Association of American Physicians, the American Neurological Association, the New York Neurological Society, the American Psychopathological Association and the New York Pathological Society; on the staffs of the Hebrew Orphan Asylum and Mount Sinai Hospital; served during the World War; in 1910 discovered a form of typhus fever known as Brill's disease; aged 65; died, December 13, following a long illness.

Gershom Hyde Hill ✠ Des Moines; Rush Medical College, Chicago, 1874; lecturer on insanity, State University of Iowa College of Medicine, 1890-1906; professor of mental diseases, Drake University College of Medicines, Des Moines, 1903-1913; member of the American Psychiatric Association; assistant physician, 1874-1881, superintendent, 1881-1902, Independence (Iowa) Hospital for Insane; formerly on the staffs of the Congregational, Mercy and Methodist hospitals, where he died, November 24, aged 79.

J. Matt Gordon ✠ Weatherford, Okla.; Medical Department of the University of Illinois, Chicago, 1905; president of the Custer County Medical Society; for many years chairman of the board of education; served in the M. C., U. S. Army, with the rank of captain, during the World War; aged 60; died, November 26, of nephritis.

Harry Ernest McCall, St. Louis; State University of Iowa College of Medicine, Iowa City, 1903; member of the Iowa State Medical Society; past president of the Taylor County (Iowa) Medical Society; served during the World War; aged 50; died, November 23, of angina pectoris.

Thomas Dunn Hutton, Glade Spring, Va.; Medical College of Virginia, Richmond, 1894; member of the Medical Society of Virginia; for many years secretary of the Washington County Board of Health; aged 56; died, November 19, of heart disease.

Earle Worthington Weathers, Elkton, Ky.; Louisville Medical College, 1905; member of the Kentucky State Medical Association; mayor of Elkton; aged 43; died, November 21, at a hospital in Hopkinsville, of injuries received in an automobile accident.

Henry Rutherford Morrison, Rockbridge Baths, Va.; University of Virginia Department of Medicine, Charlottesville, 1887; member of the Medical Society of Virginia; aged 60; died, November 11, in a hospital at Richmond.

William J. Ragan, Shawano, Wis.; Milwaukee Medical College, 1898; member of the State Medical Society of Wisconsin; aged 59; died, November 27, at St. Mary's Hospital, Milwaukee, following an operation.

Albert Evans Tatman, Eureka Springs, Ark.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1904; veteran of the Spanish-American and World wars; aged 55; died, November 24, of heart disease.

Henry Granville Godfrey ✠ Philadelphia; Jefferson Medical College of Philadelphia, 1900; formerly assistant demonstrator of clinical medicine at his alma mater; aged 50; died, October 27, of heart disease.

Byron Ernest Finley, St. Louis; Kentucky School of Medicine, Louisville, 1897; member of the Missouri State Medical Association; aged 49; died, August 15, at Los Angeles, of chronic nephritis.

William H. Dewing, Clayville, N. Y.; Hahnemann Medical College of Philadelphia, 1882; for many years health officer of Clayville; aged 67; died, November 24, at the home of his son in Scotia.

Charles E. Rowe ✠ Hubbell, Mich.; Northwestern University Medical School, Chicago, 1905; past president of the Houghton County Medical Society; aged 49; died, November 24, of septicemia.

Christian Lenker ✠ Schuylkill Haven, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1877; Civil War veteran; aged 83; died, in November, of heart disease and senility.

Caroline North Stevens, West Cornwall, Conn.; Tufts College Medical School, Boston, 1898; member of the Connecticut State Medical Society; aged 51; died recently, of pulmonary embolism.

Reinhart F. Schwartz, Charlotte, Iowa; Medical Department of the University of Illinois, Chicago, 1906; member of the Iowa State Medical Society; aged 42; died, November 22, at Clinton.

Perry Hardy Doughty, Juneau, Wis.; Keokuk (Iowa) Medical College, 1892; member of the State Medical Society of Wisconsin; aged 57; died, November 21, following a long illness.

Thomas Francis Darby, River Point, R. I.; Baltimore Medical College, 1898; member of the Rhode Island Medical Society; aged 50; died, November 23, of heart disease.

George P. Knight, Monticello, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1876; county health physician; aged 72; died suddenly, November 24, of heart disease.

John W. Knox, Stewardson, Ill.; Medical College of Ohio, Cincinnati, 1873; served as postmaster, 1872-1885; formerly a druggist; aged 90; died, November 20.

George Gunn, San Francisco; California Eclectic Medical College, Los Angeles, 1893; aged 62; died, November 24, of ruptured aneurysm of the aorta.

Benjamin Franklin Tichenor, Crescent City, Fla.; Kentucky School of Medicine, Louisville, 1891; aged 59; died, November 18, of angina pectoris.

Wilfred Ellsworth Rounseville ✠ Attleboro, Mass.; Medical School of Harvard University, Boston, 1909; aged 43; died suddenly, in November.

Clifton Mears Rosin ✠ New York; Bennett College of Eclectic Medicine and Surgery, 1907; aged 41; died, November 24, at Philadelphia.

Carr Warder Newman, Hinton, Mo.; Kentucky School of Medicine, Louisville, 1894; aged 65; died, in November, of cerebral hemorrhage.

Andrew J. Campbell, Elizabethtown, Tenn.; University of Tennessee College of Medicine, Memphis, 1892; aged 69; died, October 5.

David J. Roberts, New Rochelle, N. Y.; New York Homeopathic Medical College and Hospital, 1886; aged 69; died, November 23.

Edward C. Cartledge, Atlanta, Ga.; Atlanta Medical College, 1895; aged 58; died, November 28, following a long illness.

James M. Wheat, Coker, Ala.; University of Nashville (Tenn.) Medical Department, 1907; aged 52; died, November 20.

Alberta Reed Carpenter, Hustonville, Ky.; Woman's Medical College of Cincinnati, 1895; aged 58; died, November 2.

Franklin Maynard Eaton, Calais, Maine; Medical School of Harvard University, Boston, 1885; aged 64; November 22.

William Corpron, Yakima, Wash.; University of Michigan Medical School, Ann Arbor, 1891; aged 61; died, October 24.

Frank D. Soverin, Braceville, Ohio; Toledo Medical College, 1891; aged 64; died, October 3, following a long illness.

Alice E. Loomis, Jefferson, Ohio; Cleveland University of Medicine and Surgery, 1890; aged 67; died, October 16.

Roderick L. Fraser, Victoria, B. C.; Jefferson Medical College of Philadelphia, 1891; aged 65; died, November 15.

Frank Allan Kinsey, Orange, Calif.; Missouri Medical College, St. Louis, 1898; aged 55; died, November 11.

William Charles Wall, Atlanta, Ga.; Louisville Medical College, 1894; aged 70; died, November 19.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

VITALAIT NOT ACCEPTABLE FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. PUCKNER, Secretary.

"Vitalait" is the uninforming name under which the Vitalait Laboratory of Newton Centre, Mass., markets a culture of *B. acidophilus*. It is so named on the label, but no statement of the number of viable organisms contained in a given quantity of the culture is given.

In the advertising for Vitalait which is sent to physicians, the generally discarded autointoxication theories of Metchnikoff are used as a warrant for recommending its use in a host of conditions. On this basis, the booklet "Vitalait and Its Uses" gives sweeping recommendations for the use of the product. In autointoxication it is said that "there is no known therapeutic aid which can equal Vitalait"; in neurasthenia it is said that "the favorable results from Vitalait . . . have made it the 'first thought' of most physicians"; neuritis is said to be "one of the many conditions where Vitalait acts as if by magic." In general, Vitalait is said to be "the magic wand in the physician's hand." The booklet also states that Vitalait is of value indirectly in anemia, chlorosis, dropsy, dyspepsia, eclampsia, fevers, gastralgia, gastritis, headache, high blood pressure, influenza, insomnia, nephritis, obesity, obscure pains and typhoid fever.

A layman who wrote to the Vitalait Laboratory, Inc., of Newton Centre, Mass., for information received a letter signed "R. D. Turner, M.D., President." Enclosed with the letter were two pamphlets and an order blank. One pamphlet, entitled "Vitalait," with subheads, "What it is," "What it does and How it does it," explains:

"Vitalait helps the system to get rid of poisons formed by the activities of the body cells."

Also:

". . . among the diseases caused by intestinal toxemia may be listed acne, anemia, arterio-sclerosis, arthritis, asthma, auto-intoxication, catarrh of the intestines, colitis, constipation, diarrhea, gastritis, gout, hay fever, headache, high blood pressure, influenza, insomnia, lumbago, migraine, muscular rheumatism, myalgia, neurasthenia, neuritis, obscure pains, skin diseases, etc."

The second pamphlet "Vitalait and its Uses" is plainly addressed to the public. It begins with a statement that the acquisition and maintenance of vigorous health depends on the normal functioning of every part of the human body and that this is governed by proper assimilation and the prompt and efficient elimination of waste products. It then expounds how waste material accumulates, how this accumulation is putrified by the bacteria eaten with the food, and how the poisons formed are carried to the various tissues "where they exert their deleterious influences." It is then said:

"In the joints they cause arthritis, rheumatism, etc.; in the nerves, neuralgia and neuritis; in the blood vessels, arteriosclerosis or hardening; in the stomach, gastritis and indigestion; in the intestine, constipation or diarrhea; in the brain, headache, lassitude, etc.; in the muscles, pain or general weakness, and so on throughout the whole system."

After thus depicting the evil effects of "autointoxication," the pamphlet proceeds:

"It is obvious that if a person could regularly put into his intestine the helpful *Bacillus acidophilus*, he could prevent the terrible poisoning caused by the harmful bacteria, or if the harmful ones had already obtained a foothold, he could restore them and permit his body to free itself of the accumulated poisons and regain its normal healthy state."

To this end, the Vitalait Laboratory of Newton Centre, Mass., offers to aid the reader in preventing or overcoming autointoxication by supplying him with the needed panacea, Vitalait.

Vitalait (Vitalait Laboratory of Newton Centre, Mass.) is unacceptable for New and Nonofficial Remedies because it is marketed under a noninforming name; because the claims made for it are unwarranted and misleading; and because it is exploited to the public in a way to lead not only to its use for imaginary ills, but also for conditions in which correct diagnosis and rational medical treatment are all important.

Correspondence

SERUM FOR INFANTILE PARALYSIS

To the Editor:—In a communication in THE JOURNAL, September 26 (page 995), Dr. George Draper makes certain points with which I must disagree. With one, however, the necessity for a preparalytic diagnosis to secure the best results in any form of serum treatment, all clinicians will heartily concur.

Dr. Draper favors the use of serum from patients recovered from acute poliomyelitis and cites a specific case in which, by the administration of such serum, a baby with infantile paralysis recovered without the onset of paralysis. He acknowledges that previous reports of the use of serum from recovered patients with poliomyelitis have not been encouraging, but attributes this to the giving of insufficient serum.

The proper dose, according to Dr. Draper, should be 15 c.c. intraspinally, with from 150 to 200 c.c. of serum intravenously, requiring about 500 c.c. of blood. He thinks that the blood might either be secured from recovered patients by health boards, or bought directly from the patients, if not given by them gratuitously.

Dr. Draper refers to Rosenow's serum only to condemn it. He states that nobody "has ever produced infantile paralysis in monkeys." In the (Mayo) *Clinic Bulletin* (Sept. 23, 1924), Rosenow is reported as reproducing in rabbits with remarkable verisimilitude the various types of human poliomyelitis by means of cultures of his pleomorphic streptococci taken from the nasopharynx of patients.

I have used Rosenow's antistreptococcic poliomyelitis serum for several years and consider it invaluable. Dr. Draper affirms that serum from recovered patients "is of no value if paralysis has already occurred." I do not agree with this statement at all with the use of Rosenow's serum, although the earlier it is given the better. Thus, within a few weeks an adult of 34 was seen in consultation in a distant town with great rigidity of the neck and back, severe headache and backache, muscular twitchings, fever and vomiting, all appearing within twenty-four hours. Rosenow's serum was sent but, before its arrival (twelve hours later), paresis had affected one leg and difficulty in swallowing occurred. Two doses of Rosenow's serum were given intravenously; the paresis disappeared in a day and the difficulty in swallowing within a few days, and the patient made a complete recovery. For the first time in the history of the small town in which the patient lived, three cases of infantile paralysis had occurred, and within a week. The case recorded is the only one in which the patient lived.

This brings up the manner of giving the serum. Dr. Draper affirms that the injection of a foreign serum intraspinally is a dangerous matter in increasing congestion of the cord in poliomyelitis and, as in the previous sentence he had been speaking of Dr. Rosenow's serum adversely, one would naturally infer that Dr. Rosenow's serum is given intraspinally. This is not the case, and Dr. Rosenow has repeatedly warned against its use in this way. His serum is injected intravenously or intramuscularly, a much easier method than intraspinally.

Dr. Draper, with his exceptional training, ability and experience recognizes the futility of his single case proving anything in respect to the therapeutic value of human serum, and so do I.

The case recorded will serve to offset Dr. Draper's, and it is difficult for us not to parade our apparent therapeutic successes.

Every clinician with much experience knows that in epidemics of infantile paralysis the majority of patients do not develop paralysis at all and recover spontaneously without any treatment whatever; that the paralysis may be naturally slight and rapidly disappear; that the degree of virulence and mortality vary in the most extraordinary manner in different outbreaks, and that the beneficial effect of lumbar puncture alone is sometimes surprising.

While I have not seen Dr. Rosenow's reproductions in animals of human poliomyelitis, I have observed and been amazed by the almost miraculous reproduction of epidemic encephalitis in rabbits by Rosenow with cultures of his green-producing streptococcus taken from patients. It is difficult, indeed, not to be greatly impressed by the marvelous mimicry of the various forms of the disease in man in their every detail.

To look at the matter in a practical way, what have we to aid us without the serum of Rosenow in epidemic encephalitis and acute anterior poliomyelitis? Human serum is not hyperimmune, as is Rosenow's, and its supply is and must be limited and, as in the case of serum from recovered influenza pneumonia patients, its curative effect is questionable (Peabody).

KENELM WINSLOW, M.D., Seattle.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT OF TETANUS

To the Editor:—I have now under treatment a case of tetanus. I gave the patient 30,000 units of antitetanic serum intraspinally, the second day after the onset of the disease. At the same time I gave him 30,000 units intravenously. He began to improve rapidly, but still after five days his back muscles and jaws are firmly spastic. He feels well, and apparently is recovering, except for this contraction. Is it advisable to give him any further antitetanic treatment, in view of his rapid improvement, or shall I wait for this muscular rigidity gradually to subside?

M.D., Illinois.

ANSWER.—In persons recovering from tetanus, the rigidity of muscle groups subsides slowly, and therefore the persistence of rigidity for a number of days in a case such as that described, in which an adequate dose of antitetanic serum has been given, is not an indication for repetition of the serum.

A rational treatment of tetanus by antitoxin requires a clear understanding of the distribution of the tetanus toxin in the body of the patient. Following the receipt of the wound and the introduction of tetanus bacilli or spores, the production of tetanus toxin proceeds at a rapid or slow rate depending on whether the conditions of the wound are favorable or unfavorable for the growth of the bacilli.

As the toxin is formed, it is either absorbed by the motor end plates of nerves in the vicinity of the wound, or enters the lymphatics, to pass into the blood stream, and thence be absorbed by the motor end plates of nerves all over the body. The toxin travels centrad along the nerves at a fairly uniform rate, and consequently the toxin traveling along the shortest nerves first reaches the central ganglion cells, with resulting spasm in the muscles supplied by them. Trismus is therefore usually the earliest symptom of tetanus, with cervical rigidity following soon afterward, no matter where the location of the wound. In certain rare cases in which toxin production is very slow, and small in amount, rigidity of an extremity may precede trismus.

When the presence of tetanus is first recognized, the toxin is then already widely distributed in the body. The intravenous injection of one large dose of from 30,000 to 40,000 units of antitoxin will neutralize so far as is possible the toxin in the blood stream. The intrathecal injection of 10,000 units will neutralize, to some extent, toxin reaching the spinal cord.

If a fatal dose of toxin has not already reached the central nervous system and become inaccessible to neutralization by antitoxin, treatment by antitoxin will help to save life. Obviously, antitoxin should be given in adequate doses at the earliest possible moment after recognition of the disease. Symptomatic treatment by sedatives such as bromids and chloral, abundance of fluids and the maintenance of quiet surroundings are important. Magnesium sulphate given intrathecally or by intravenous injection to reduce nervous irritability are warmly advocated by some, and seem often to be of value. Their use requires great care to avoid overdepression, with interference with respiration.

MEAT AND PASTRY IN THE DIET—COD LIVER OIL

To the Editor:—1. There have been recently published in some of our most popular periodicals several autobiographic articles by people in the limelight explaining their methods of keeping fit. One of these never eats meat; another, only chicken or squab; a third, only white meat or fish. All avoid "red meat." Have we any scientific proof that a moderate serving of meat once a day is harmful to any undiseased person of whatever age? Another item frequently stressed is the elimination of all pastry from the diet. Is there any objection to a moderate amount of pastry if it does not crowd out other needed foods or if it is not added to an already sufficient number of calories? In other words, is it harmful in itself? 2. I recently heard a cooking teacher advise the use of a pinch of cayenne pepper in all meat and vegetable dishes because "it is a wonderful stimulant to digestion." Your opinion, please? 3. In the event of cod liver oil causing urticaria in an infant, what would you recommend?

M. D. M., M.D., Lima, Ohio.

ANSWER.—1. All these various apparently mutually contradictory methods have in common a restriction in diet. This leads to moderation in eating, which is the great desideratum. A moderate amount of meat once a day is not harmful, nor is there any objection to a reasonable indulgence in pastry.

2. The less spicing one can get along with, the better. Condiments and spices, it is true, stimulate digestion; but they also irritate the stomach, the liver and the kidneys; and there is a tendency to progressive increase in their use. People of vigorous digestion require little seasoning. Unfortunately, the time does come, as we get older, when we require a certain amount of seasoning to help along in digestion; and, used in moderation, it is more beneficial than harmful. If cayenne pepper stimulates appetite and digestion it may be used occasionally, but any stimulant becomes less efficient on continuous use.

3. If an infant has rickets and an idiosyncrasy against cod liver oil, actinotherapy in the form of sun baths or ultraviolet ray exposures should be employed. Cod liver oil extract and irradiated foods have not yet been developed to a sufficient extent to be commercially obtainable in reliable form.

LONG CONTINUED USE OF INSULIN

To the Editor:—Has the long continued use of insulin, even in mild dosage, any unfavorable tendency? On the other hand, has experience demonstrated any favorable effect to be expected? This refers to a patient, aged 68, who has had gangrene of one extremity, amputation and healing, although arteriosclerosis is quite markedly present.

P. W. V., M.D., Iowa.

ANSWER.—In Medicine Monographs, Volume 6, Insulin and Its Use in Diabetes, by J. J. R. Macleod and W. R. Campbell (Baltimore, Williams & Wilkins Company, 1925), the authors say that three years of insulin treatment of patients with severe diabetes, with a lack of any evidence of deleterious effects, is sufficient guarantee that insulin can be continuously used without its value becoming impaired by unforeseen occurrences.

"The insatiable hunger of the emaciated, undernourished diabetic patient disappears with the improved state of nutrition, and is replaced by a healthy appetite for regular meals. We have found that the menstrual function has returned in several instances; so also, occasionally, has sexual desire. Eyesight usually improves in those cases with lesser degrees of local damage. The restoration of physical vigor is such that most patients are able to return to work. Most interesting is the change in the mental state of the patient. From depression, melancholia, inability to think, and often black

despair, patients recover to an astounding degree their mental alertness, cheerfulness and interest in their surroundings. Irritability and insomnia disappear. . . . Insulin provides for some patients an opportunity for resting the pancreatic function, which was impossible by other methods of treatment, and as a result increases in tolerance are not uncommonly observed. . . . The proportion of patients with uncomplicated diabetes who find it possible to discontinue insulin after a time is comparatively small, but many show an increase in tolerance which, though small, is yet sufficient to render it possible to supply a working diet with the same dose of insulin as was previously necessary when only a basal maintenance diet could be given. In some cases the insulin dosage may even be reduced. It seems possible that this so-called recovery of tolerance which usually occurs in the first months after treatment with insulin should be regarded rather as release of a latent tolerance submerged by previous overwork of the pancreas.

"The question of an actual regeneration of islet tissue must be very cautiously approached. It can be settled only by time, and it seems unfair to arouse hopes that are not justified by experience. In some of the mild cases and particularly in the young this is a possibility. It may be pointed out that children who have not attained adult body weight present the additional possibility that, under careful treatment and rest of the pancreas with insulin, a normal growth of the pancreas with increase in age may occur and thereby a greater tolerance for carbohydrate may be acquired."

From pages 159 and 160, we quote:

"The aged patient generally shows a much less rapid recovery of strength, gains weight more slowly, and he requires a proportionately larger dose of insulin to produce a given amount of improvement. . . . Aged diabetic patients also suffer from many complications in part related to their age and also contributed to by the diabetic state. Coldness, numb extremities, muscle cramps, paresthesia, neuritis, ataxia, incoordination, etc., are dependent usually on permanent organic changes in the circulatory and nervous systems, and the possibilities of improvement under insulin are rather remote."

INTESTINAL INFLUENZA

To the Editor:—Please prepare or have prepared an editorial or, in some way, give us your opinion, or the opinion of others, on this so-called intestinal influenza that we hear so much about in country practice. We have lately consulted several authorities on this supposed disease and can find no one man or set of men that will agree or even are willing to admit that there is such a disease. I would appreciate much to have it answered fully or to leave it for open discussion and get the opinion of others on this subject.

C. J. SNITKAY, M.D., Belle Plaine, Iowa.

ANSWER.—There is no reasonable doubt of the existence of an intestinal form of influenza which in certain pandemics has been noted to occur in a little more than 1 per cent. of all cases of the disease. Authoritative information on this subject may be found, for instance, in the volume on Influenza (Nothnagel's Practice, Philadelphia, W. B. Saunders Company, 1905). Of course, diagnosticating intestinal influenza is quite likely to be erroneous in the absence of an epidemic. Until the etiologic factor of influenza has been isolated, we can make a positive diagnosis of the disease only from its epidemic or pandemic character.

INGROWN HAIRS AND PAINFUL SKIN

To the Editor:—I have a patient who has many ingrown hairs on his face, making it impossible for him to shave. His skin has become tender and slightly edematous. I have used various oils and ointments, electrolysis not being practical, as the ingrown hairs are too numerous and the skin too tender. This man is in business, and the condition is embarrassing, besides being painful. Kindly outline any treatment, besides that I have enumerated, or give me some ointment combination that I could prescribe. (Kindly omit name.) M.D., Chicago.

ANSWER.—Patients who think they have sore face from ingrowing hairs are usually mistaken. The trouble is usually not ingrowing hairs but arises from the fact that such patients keep the face sore either by digging for suspected ingrown hairs or by cutting off the conical points around the hairs in shaving. The course to pursue is, first to stop picking at the face; then, not to shave close; and, finally, to wash the face lightly after shaving and at night with a mildly astringent solution. For this purpose a solution of 8 per cent. aluminum acetate, 1 ounce (30 c.c.), to a pint (475 c.c.) of water may be recommended. But picking at the face must be stopped!

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 12. Chairman, Dr. S. W. Welch, Montgomery.

ARIZONA: Phoenix, Jan. 5-6. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.

COLORADO: Denver, Jan. 5. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Jan. 12. Sec., Dr. Edgar P. Copeland, Apt. 104, Stoneleigh Court, Washington, D. C.

HAWAII: Honolulu, Jan. 11. Sec., Dr. G. C. Milnor, 401 So. Beretania St., Honolulu.

ILLINOIS: Chicago, Jan. 19-21. Supt. of Reg., Mr. V. C. Michels, Springfield, Ill.

INDIANA: Indianapolis, Jan. 12. Sec., Dr. W. T. Gott, 421 State House, Indianapolis.

MINNESOTA: Minneapolis, Jan. 5-7. Sec., Dr. Thomas S. McDavitt, 734 Lowry Bldg., St. Paul.

NEW YORK: Albany, Buffalo, New York, Syracuse, Jan. 25-28. Chief, Mr. Herbert J. Hamilton, Department of Education, Albany.

NORTH DAKOTA: Grand Forks, Jan. 5. Sec., Dr. George M. Williamson, Grand Forks.

OREGON: Portland, Jan. 5-7. Sec., Dr. N. C. Coe, 1208 Stevens Bldg., Portland.

PENNSYLVANIA: Philadelphia, Jan. 26-30. Act. Sec., Mr. C. D. Koch, Harrisburg.

RHODE ISLAND: Providence, Jan. 7. Sec., Dr. Byron U. Richards, State House, Providence.

SOUTH DAKOTA: Pierre, Jan. 19. Dir. Med. Licensure, Dr. H. R. Kenaston, Bonesteel, S. D.

UTAH: Salt Lake City, Jan. 5. Director of Reg., Mr. J. T. Hammond, 412 State Capitol Bldg., Salt Lake City.

WASHINGTON: Olympia, Jan. 12. Sec., Mr. William Melville, 15 Insurance Bldg., Olympia.

WEST VIRGINIA: Charleston, Jan. 19. Sec., Dr. W. T. Henshaw, State Health Department, Charleston.

WISCONSIN: Madison, Jan. 12-14. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., La Crosse.

Louisiana June Examination

Dr. Roy B. Harrison, secretary of the Louisiana Board of Medical Examiners, reports the written examination, held at New Orleans, June 11-13, 1925. The examination covered 10 subjects, and included 100 questions. An average of 75 per cent. was required to pass. Of the 57 candidates examined, 56 passed and 1 failed. Four candidates were licensed by reciprocity. The following colleges were represented:

PASSED	Year Grad.	Per Cent.
Loyola University School of Medicine	(1924)	88.8
Tulane University of Louisiana School of Medicine	(1925)	80.1, 87, 87.3, 87.4, 87.6, 87.7, 87.8, 87.9, 88.1, 88.1, 88.2, 88.3, 88.4, 88.5, 88.6, 88.6, 88.6, 88.7, 88.8, 88.9, 88.9, 89, 89.2, 89.2, 89.3, 89.4, 89.5, 89.5, 89.6, 89.7, 89.7, 89.8, 89.9, 89.9, 90, 90.1, 90.3, 90.4, 90.4, 90.6, 90.9, 91, 91, 91.2, 91.2, 91.3, 91.4, 91.7, 91.9, 92.1, 92.2, 92.7, 93.5
Meharry Medical College	(1924)	83.6
University of Tennessee College of Medicine	(1924)	83.8

FAILED	Year Grad.	Per Cent.
Meharry Medical College	(1914)	71.5

LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago	(1906)	Illinois
Tulane University of Louisiana School of Medicine	(1884)	Alabama
University of Michigan Medical School	(1918)	Michigan
University of Pennsylvania School of Medicine	(1908)	Penna.

South Carolina June Examination

Dr. A. Earle Boozer, secretary of the South Carolina Board of Medical Examiners, reports the written examination held at Columbia, June 23-25, 1925. The examination covered 18 subjects and included 180 questions. An average of 75 per cent. was required to pass. Thirty-six candidates, including 1 osteopath, were examined, all of whom passed. Seven were granted licenses through reciprocity. The following colleges were represented:

PASSED	Year Grad.	Per Cent.
Harvard University	(1925)	88.5
Western Reserve University School of Medicine	(1924)	89.3
Medical College of the State of South Carolina	(1925)	79.8, 81.9, 82.4, 82.4, 82.5, 82.8, 82.9, 83.1, 83.3, 84.5, 84.6, 84.9, 84.9, 85.3, 85.8, 86, 86.1, 87.1, 87.5, 87.6, 87.9, 88, 88, 89.3, 89.5, 89.9, 90.5, 93.8, 94.3

Meharry Medical College	(1923) 78.4,	(1925)	75, 81.4
University of Virginia Department of Medicine	(1925)		91.8
Osteopath			84.1

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Atlanta Medical College	(1898),	(1915)	Georgia
University of Georgia Medical Department		(1901)	Georgia
Bennett Medical College		(1913)	N. Carolina
University of Maryland School of Medicine		(1922)	N. Carolina
Woman's Medical College of Pennsylvania		(1919)	Alabama
Medical College of Virginia		(1924)	Virginia

Book Notices

INFECTIONS OF THE HAND. A Guide to the Surgical Treatment of Acute and Chronic Suppurative Processes in the Fingers, Hand, and Forearm. By Allen B. Kanavel, M.D., Professor of Surgery, Northwestern University Medical School. Fifth edition. Cloth. Price, $5.50. Pp. 499, with 196 illustrations. Philadelphia: Lea & Febiger, 1925.

A surgeon is not justified in treating hand infections without a thorough and intelligent study of this book. Now in its fifth edition, it represents one of the most brilliant monographs in surgical literature. The author makes a detailed presentation of the anatomic relationships between such structures as tendon sheaths and bursae, fascial spaces and lymphatics. By means of dissections and experimental injections of cadaver hands, he has demonstrated the routes of extension of pus from the common foci of infection. He has closely correlated clinical signs with underlying pathologic changes by a clear diagnostic picture of each type of infection. This has resulted in the establishment of early diagnosis, particularly in the dangerous tendon sheath infections. He points out the importance of properly placed incisions, calculated not only to provide efficient drainage, but also to avoid unnecessary damage to the motor mechanism of the hand. There is an excellent exposition of the lymphatic infections. The first part of the work is devoted to simple localized infections, such as felon and paronychia; the second part to grave infections, such as tendon sheath and fascial space infections. The anatomy of the hand and forearm is studied from a surgical standpoint, and sections of the book deal with lymphatic and allied infections, erysipelas, gas bacillus infections and tuberculosis. There are also chapters on the complications and sequelae of hand infections, such as ankylosis and contracture, with a study of corrective measures. In the chapter on after-treatment, the author makes it obvious that the control of infection must be accomplished without the sacrifice of function; the so-called position of function must be maintained from the start, and in old cases must be obtained by the use of splints. The text is profusely illustrated.

A SYNOPSIS OF SURGERY. By Ernest W. Hey Groves, M.S., M.D., B.Sc., Surgeon to the Bristol General Hospital. Seventh edition. Cloth. Price, $5. Pp. 671, with 162 illustrations. New York: William Wood & Co., 1925.

The author, in the preface, says: "It is, of course, obvious that the large works cannot be dispensed with; but after a student has carefully read through a complete textbook, he may find this synopsis will aid his memory in retaining a vast array of facts in an orderly manner." Obviously, such a synopsis may tempt the student to take the short-cut and to dispense with the larger works altogether. The book meets its aim unusually well. The introduction of drawings and diagrams in the new edition adds considerably to the value of the text. The information throughout is thoroughly up to date with one glaring exception, which is to be found in the chapter on exophthalmic goiter. To quote: "Treatment: Bromides, digitalis and belladonna are useful. Iodin, iodides are harmful. Moebius' serum, from thyroidectomized animals, is the most active remedy. Surgical: Arterial ligature—both superior and one inferior arteries are tied and some improvement results. Partial thyroidectomy: Removal of the whole of one lobe and half the opposite. There is danger of death from acute thyroid intoxication." The information contained here is not only inadequate; it is incorrect. The use of iodin preliminary to the operation has robbed the latter of the danger of death from intoxication. It has taken the place of polar ligation and constitutes one of the most important advances in this field. The removal of "a whole one lobe and a half of the other" would not cure many cases. It is conceded by surgeons of experience that nothing short of a radical subtotal thyroidectomy is worth while. This emphasizes once more the danger of treating surgical subjects in synopsis form.

A SYNOPSIS OF GYNAECOLOGY. By Arthur Gray, F.R.C.S., M.R.C.P., Gynaecological Surgeon, Hampstead General Hospital. Cloth. Price, $3.75 net. Pp. 352. New York: Longmans, Green & Co., 1925.

Probably the great majority of men teaching in medical schools have at some time or other prepared, each one for himself, a sheaf of notes pertaining to his particular subject. These notes usually are in typewritten form, and each compiler has no doubt looked forward to the time when expansion into a formal textbook would become feasible. This author has been the first, so far as we know, to have such notes typed with printers' ink in book form. For this volume is just that—a printed notebook. Concise to the point of incomplete sentence construction, telegraphic in its brevity, the longer paragraphs reading like night letters, the pages are packed with concrete statements, as a result of which argument becomes didacticism. As a result, further, the fundamental principles of gynecology are emphasized, its elaboration and technic merely suggested. Far from being a fault, this is a relief, when held up in comparison with the usual textbook. In its brevity of statement, the volume covers the field of gynecology in all its phases. In its classification, it is more conventional; in this respect the typical textbook is followed. To the student in training, such an exposition would be of no value; and, indeed, it is not intended for the student. In his preface, the author states that the book is primarily meant for the instructor and for use in rapid review by those preparing for higher examinations. The details of operations have been purposely omitted, the greater emphasis being placed, properly enough, on pathology.

MIDWIFERY MECHANICS. By Lieut.-Colonel Andrew Buchanan, I.M.S., M.A., M.D. Cloth. Price, $2.50. Pp. 82, with 12 illustrations. New York: Oxford University Press, 1924.

Wisdom and technical experience are exhibited in this little book. The author elaborates the theory of "pivotal points," by which he means the apex of the maternal subpubic arch and the craniovertebral junction of the child. His thesis emphasizes the necessity for recognizing before labor the presentation and the attitude of the child and the effect which the distance of the pivotal points from each other, and the ease with which they may be brought into relation, will have on the progress of labor. In the course of his argument, he finds a need for employing the term "revolution" in place of "flexion or extension" to explain the anteroposterior movement of the head on its vertebral axis. In a mechanical sense the term might carry a greater accuracy, as he contends; but, on the other hand, flexion and extension have the authority of familiarity and long usage, as well as an analogy with a similar action in other joints. Again, the term "long axis of accommodation," which the author prefers, is really no improvement in nomenclature over "Pajot's law of accommodation," with which we have long been familiar. Whatever the name, the law applies equally to the head on the pelvic floor and the child in the uterus. That the back of the babe tends to turn forward in order to accommodate its convexity to the concavity of the anterior wall of the uterus, all will agree; but that this tendency is produced by the projection of the lumbar vertebrae of the mother rather than by the physiologic flatness of the posterior wall of the organ is not so clear, unless indeed the author means that those protruding vertebrae are factors in the etiology of the flattened posterior wall. In his mechanical exposition, the author stresses the fact that if the back is in front it will result in a good vertex or a bad face position, that is, with the chin posterior; while, if the abdomen is in front, a good face or a bad vertex position will occur. In concise form he states this as his "twelve letter formula," and urges the importance

of locating the position of the child's back before labor. Such accuracy of examination cannot be emphasized too much, but in practice the procedure will be executed only by specialists or deeply interested students; and surely it will be neglected, if not despised, by the surgeon, the internist, the ophthalmologist and others who practice midwifery, not obstetrics, in off hours. It is true in general, as the author says, that the physician and widwife are imperfectly trained in obstetrics. It is perhaps true that many men in teaching positions are more interested in self-exploitation than in handing down the art of obstetrics or transmitting an enthusiasm for its study. It is undoubtedly true also that most cases of labor are conducted without any attempt in the prenatal period to learn what problem is presented by a given pregnancy. It is for this reason that Comyns Berkeley, in his discussion of occipitoposterior positions, is justified in saying that either the physician does not recognize the complication or, if he does, is usually ignorant of the correct way to handle it. For this reason too, Dr. Buchanan cries aloud for more skill, more care, more thought and more taking of pains in the conduct of pregnancy and labor. His book will strike a sympathetic chord in the hearts of the few who are really interested in and anxious for any thoughtful consideration of the mechanics of midwifery.

DIE ÄSTHETISCHE ERSCHEINUNGSWEISE DER FARBEN. Von G. J. von Allesch. Paper. Price 12 marks. Pp. 157. Berlin: Julius Springer, 1925.

This work appears to be based on a series of painstaking experiments carried on over a considerable period for the purpose of achieving something like a standardization of the emotional reactions caused by color and color combinations. The main difficulty encountered is the proper recording of these reactions. The persons used for the observations must record their impressions by describing them in words. The describing of the emotional experience of several listeners to a certain composition in music would be radically different. Compared with the presentation of formless colors, the description of a person's reaction to a musical composition would be definite. As a matter of fact, the divergence of reaction to colors as recorded in these experiments is so various and contradictory as to become practically meaningless from a scientific point of view. The esthetic conclusions that might be based on these observations would not be sufficiently well founded for the guidance of a producing artist. There may be some interest in applying the conceptions gained to the historical survey of the art of colors. The actual value of these experiments seems at this point of development in doubt.

ORTHOPÄDISCHE THERAPIE. Bearbeitet von Prof. Dr. Hermann Gocht, Direktor, und Dr. Hans Debrunner, bisher Oberarzt der orthopädischen Universitätsklinik, Berlin. Paper. Price, 22 marks. Pp. 340, with 279 illustrations. Leipsic: F. C. W. Vogel, 1925.

This monograph deals exclusively with the treatment of orthopedic conditions. In large textbooks, methods of treatment are described at length seriatim, and the reader is left to determine which method of treatment should be instituted. This treatise attempts to assist the beginner by presenting only those methods which are in use and which have stood the test of time; in each chapter a scheme of treatment is given in detail. Conditions presenting similar pathologic findings and causes are grouped together. The authors believe that in this manner the therapeutic indications will be more easily understood. Among the topics discussed in the book are systemic diseases of the skeleton; inflammatory diseases of the bones and joints; deformities of the neck, vertebral column and pelvis; deformities of the long bones; deformities of the joints; paralyses due to diseases of the muscular apparatus, and diseases of the soft parts of the motor apparatus. The illustrations showing operative procedure were, almost without exception, sketched at the operating table, the salient points being particularly emphasized. In order properly to bring out the important facts, most of the illustrations are entirely new. The book shows great thought and care in its preparation and is a real addition to orthopedic literature. It can be warmly recommended.

Medicolegal

Action for Performing Unnecessary Operation

(White v. Hirshfield (Okla.), 236 Pac. R. 406)

The Supreme Court of Oklahoma, in reversing a judgment rendered for the defendant physician, says that the plaintiff alleged that, in addition to delivering her of a child by Cesarean section, the defendant, without her consent, performed on her the unnecessary operation of tying or removing the fallopian tubes. The question presented to the supreme court was whether the plaintiff's right of action was barred by the statute of limitations of Oklahoma, which requires an action for assault and battery to be commenced within one year; and it is held that it was not. It is held that, in an action for damages brought by a patient against a physician and surgeon for performing an unnecessary operation on the plaintiff, such operation being without the consent of the plaintiff, the plaintiff may waive the right of action for technical assault and battery and bring an action for injury to his person by reason of such acts constituting malpractice and a violation of duty as between the physician and the patient, and in such case the statute of limitations which fixes two years as the time in which an action for an injury to a person may be brought is applicable, and not the limitation of one year fixed by the statute for actions for assault and battery.

The supreme court is of the opinion that when a patient is under the care, treatment and control of a physician, and when an unnecessary operation is performed without the consent of such patient, the elements of technical assault and battery include malpractice and a violated duty on the part of the physician to his patient, and when an injury results to the patient, that such patient may waive the action for technical assault and battery and rely on his right to recover damages by reason of the wrongful and unskilful acts of the physician, which constitute a violated duty on his part. It would be unreasonable to say that because of the act on the part of the physician in performing an unnecessary operation without the consent of the patient, the elements of malpractice, wrongful acts, and a violated duty were not present and concurrent by reason of the acts of such physician; and while it may be true that such acts may constitute technical assault and battery, yet the injured patient may waive his right to proceed in an action for assault and battery and bring an action for the wrongful and unskilful acts of the physician, such acts constituting a violated duty on the part of the physician and the consequent injury to the patient, in which case the statute requiring an action for assault and battery to be brought within one year after its accruement is inapplicable.

Physician and Abortion When Fetus Has Lost Vitality

(Commonwealth v. Nason et al. (Mass.), 148 N. E. R. 110)

The Supreme Judicial Court of Massachusetts, in overruling the exceptions of the defendants who were convicted of using a rubber tube on the body of a woman with intent to procure a miscarriage, says that the defendants were husband and wife, and that the commonwealth introduced testimony tending to show that after the woman was brought to their house, the defendant wife, with the sanction and approval of her husband, inserted a rubber tube into the body of the woman and performed certain other operations on her, as a result of which a few days later the woman was delivered of a child about three months and two weeks advanced from conception.

A request that the jury should be instructed that an indictment for producing a miscarriage could not be maintained if the fetus had previous to the acts complained of lost its vitality, so that it could never have matured into a living child, was rightly refused. The offense created by the Massachusetts statute (General Laws, Chapter 272, Section 19) is complete when a defendant unlawfully uses an instrument on the body of a woman with intent to procure her miscarriage,

and it is entirely immaterial that the fetus previous to the act complained of has lost its vitality, so that it never could have matured into a living child. Likewise, a requested instruction was rightly refused, which told the jury that if it found from the evidence that at the time the woman came to the defendants the fetus which she was carrying had already from the treatment administered by herself or one Duffy become dead and decayed, and that whatever the defendants did was merely to try to remove the remains of the dead fetus for the purpose of relieving the woman, the defendants could not be convicted. In regard to the contention of the defendants, suggested by the latter instruction, the judge instructed the jury:

"But they say, in addition, if these things were done there, if some of the things testified by the complainant and witnesses here or by the prosecutions were done, there is another view of them that takes them outside this statute, and there were no unlawful means employed to do what was done, and, therefore, no existing intent to commit any crime, and they respond to this action or indictment by the statement that one of the defendants is a physician, and what was done there was done on his judgment. Now then, a physician has a right to commit an abortion and, if it is done on the best judgment of that doctor and if his judgment corresponds with the average judgment of the doctors in the community in which he practices, it can cease to be illegal and becomes legal; just as legal as if he were delivering a woman with forceps five days before the period of gestation. If that defense is true, it is a complete defense if they both have acted under it. If he gave the advice and the woman defendant was acting under this advice, she is justified; but if he was giving advice that she did not know of and was taking on her own enterprise and undertaking to do something whereby she was not covered by a physician's advice, she cannot justify unless she was acting under his instructions."

This was sufficiently full and accurate to protect the rights of the defendants.

Contract to Withhold Information About Mistake

(Maryland Casualty Co. v. Fidelity & Casualty Co. (Calif.), 236 Pac. R. 210)

The District Court of Appeal of California, First District, Division 1, says that the plaintiff was, under a workmen's compensation policy, the insurance carrier of a company, one of whose employees in the course of his employment met with an accident through which he was ruptured, after which he was at the plaintiff's expense taken to a hospital for treatment. During the treatment an employee of the hospital, in the performance of his duties, delivered to a surgeon attending the injured man a preparation to be injected hypodermically. Through the negligence of the attendant, a different substance was substituted for that which should have been used, in consequence whereof the injection caused pain and suffering and aggravated the injury, delaying recovery and causing an additional expense of $1,000. The hospital carried an indemnity policy of insurance against liability for negligence of its employees, issued by the defendant. Both the plaintiff and the defendant knew of the mistake which had been made, and that in consequence thereof delay would result in the injured man's recovery. He knew nothing whatever concerning the matter. The defendant thereupon stated to the plaintiff that, if it would not inform the patient of the injurious effects of the injection of the wrong preparation, and if it would pay the sum by which the expenses of the treatment had been increased in the hospital, the defendant would reimburse the plaintiff for such additional outlay. The plaintiff agreed to this, and, after it had made payment to the injured employee of all moneys due from it as the insurance carrier of the employer, it paid the further sum of $1,000 in settlement of the additional expense arising as stated above. It was on this promise of reimbursement by the defendant that the complaint in the plaintiff's suit for $1,000 was predicated. A demurrer to the complaint was sustained on the ground that the contract was against public policy and good morals and therefore unenforceable; but the judgment rendered for the defendant is reversed by the district court of appeal, it seeming clear to it that there was nothing in the agreement here involved that in any manner condemned it, and that the plaintiff, having parted with its money in reliance thereon, was entitled to recover such amount.

The plaintiff had agreed at the request of the defendant to advance a sum for which the latter was solely responsible, on the understanding that the injured employee should be kept in ignorance of the arrangement. This understanding in no manner affected the patient's rights, and this court fails to see how vice was imported into the transaction by reason thereof, or how the arrangement was in any manner controlled or affected by public policy. The mere agreement of the parties not to disclose their arrangement to the injured employee in no manner encouraged a relaxed responsibility or a lessening of the care and watchfulness due to him, contrary to the interests of society, which would justify its denouncement. The plaintiff owed no duty to the employee to divulge to him the fact that his recovery had been delayed through carelessness. That was a matter between the patient and the institution employed to care for him, but which did not concern the plaintiff. No confidential relation of any kind was breached. Moreover, to render a promise of the character here involved illegal, it must have been for the sake of gain. Hearing denied by the Supreme Court of Cailfornia.

May Testify After Making Examination for Attorney

(Leard v. State (Okla.), 235 Pac. R. 243)

The Criminal Court of Appeals of Oklahoma says that some four days after the offense charged in the information (the commission of rape) the county attorney had a physician make a physical examination of the prosecuting witness. The physician was not called as a witness by the state, but was offered as a witness for defendant Leard, and objection was made to the physician's testimony as being privileged. Section 589 of the Compiled Laws of Oklahoma of 1921 provides that:

> The following persons shall be incompetent to testify: . . . A physician or surgeon, concerning any communication made to him by his patient with reference to any physical or supposed physical disease, or any knowledge obtained by a personal examination of any such patient. . . .

The defendant, however, contended that the relation of physician and patient did not obtain in this case, for the reason that it was shown that the county attorney was present at the examination, and the physician was called by the county attorney. The court believes that the contention was well taken that the witness was competent and should have been permitted to testify. As expressed in the syllabus prepared by the court: A physician who makes an examination of a person at the direction of a prosecuting attorney, if he does not assume to act as a physician for such person, and is not called or employed as a physician by or for the person examined, is a competent witness to testify regarding the information gained in such examination.

Society Proceedings

COMING MEETINGS

American Pharmacological Society, Cleveland, Dec. 28-31. Dr. E. D. Brown, University of Minnesota, Minneapolis, Minn., Secretary.

American Physiological Society, Cleveland, Dec. 29-31. Dr. W. J. Meek, Science Hall, Madison, Wis.

American Society for Experimental Pathology, Cleveland, Dec. 28-30. Dr. E. B. Krumbhaar, Philadelphia General Hospital, Philadelphia, Sec'y.

American Society of Biological Chemistry, Cleveland, Dec. 28-30. Dr. D. W. Wilson, University of Pennsylvania School of Medicine, Philadelphia, Secretary.

Federation of American Societies for Experimental Biology, Cleveland, Dec. 29-31. Dr. Walter J. Meek, Science Hall, Madison, Wis., Sec'y.

Isthmian Canal Zone, Medical Association of, Ancon, Jan. 19. Dr. David L. Robeson, Ancon Hospital, Ancon, Secretary.

Sioux Valley Medical Association, Sioux City, Iowa, Jan. 19-20. Dr. R. F. Bellaire, Trimble Block, Sioux City, Secretary.

Society of American Bacteriologists, Madison, Wis., Dec. 29-31. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL for a period of three days No foreign journals are available prior to 1920, nor domestic prior to 1923. Periodicals published by the American Medical Association are not available for lending, but may be supplied on order. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

30: 603-752 (Nov.) 1925

*Etiology of Chronic Intestinal Indigestion. A. Brown, A. M. Courtney, G. A. Davis and I. F. MacLachlan, Toronto.—p. 603.
*Tetany as Cause of Convulsions in Whooping Cough. G. F. Powers, New Haven, Conn.—p. 632.
*Frequent Cause of Dyspepsia in Breast Fed Infants. K. U. Toverud, Oslo, Norway.—p. 642.
*Inorganic Phosphorus in Blood of New-Born. Seasonal Variation and Relation to Rickets. E. A. Riesenfeld, I. Handelman and A. R. Rose, New York.—p. 646.
*Intraperitoneal Transfusion of Citrated Blood. J. M. Sansby, St. Paul. —p. 659.
*Urobilin Excretion in Children with Anemia. K. Merritt, New York.—p. 667.
*Extreme Leukocytoses in Pertussis. R. P. Seitz, San Francisco.—p. 670.
*Carbohydrate Metabolism of Normal Infant. F. F. Tisdall, T. G. H. Drake, and A. Brown, Toronto.—p. 675.
*Craniotabes. C. U. Moore and H. G. Dennis, Portland, Ore.—p. 683.
*Gummatous Osteoperiostitis of Skull in Congenital Syphilis; Two Cases. E. C. Dunham, New Haven, Conn.—p. 690.
Literature on Infant Feeding for 1924. R. D. Moffett, New York.—p. 700.

Etiology of Chronic Intestinal Indigestion.—That a predominantly gram-positive aciduric intestinal flora of *B. bifidus* type is characteristic of chronic intestinal indigestion has been confirmed by Brown et al. That proteolytic activities are concerned in the production of the symptoms of chronic intestinal indigestion is indicated by the abnormally high ammonia content of the feces. A highly proteolytic spore bearing bacillus, isolated from the stools in two cases of chronic intestinal indigestion, has been found to be capable of extreme changes in the nature of its metabolic activities (in milk). "Bacillus A" forms, which constitute the predominant organisms of the typical flora in chronic intestinal indigestion are also variable in their metabolic behavior (in milk), though when cultured alone they are not usually strongly proteolytic. Some support is given by this work to the theory that a transformation of one to the other of *B. bifidus*, "Bacillus A" forms and a spore bearing bacillus, such as Noguchi brought about experimentally, may take place in the intestinal tract under some circumstances. Feeding experiments with white rats showed that they did not gain normally while being fed milk cultures of the beforementioned spore bearing bacillus but resumed the normal rate of gain as soon as the diet was changed. Cultures of the other organisms did not interfere with normal growth. Acidified milk and culturing with *Streptococcus lacticus* inhibited the growth depressing effect of one spore. *Streptococcus lacticus* (*Micrococcus ovalis*), the organism used in the preparation of the lactic acid and protein milk, which forms a part of the special high protein diets used in the treatment of chronic intestinal indigestion, established itself as the predominant organism of the feces soon after its infection has been begun. However, it probably takes a long time for it to oust completely the offending flora, which perhaps persists in a spore form. *Streptococcus lacticus* was very active metabolically in casein enriched low sugar milk and formed no harmful products.

Tetany Cause of Convulsions in Pertussis.—Powers calls attention to the fact that infantile tetany, and not anatomic injuries or an unknown toxin, is often the cause of the convulsions in whooping cough. Electrical hyperirritability of the nerves and a reduced calcium concentration of the blood serum may be the only means of recognizing the existence of tetany. A recognition of the rôle of tetany in this connection is important, that appropriate therapy for preventive as well as for curative purposes may be instituted.

Partial Inanition Cause of Dyspepsia in Breast Fed Infants.—In Toverud's experience, overfeeding with breast milk is a rare cause of dyspepsia. Partial inanition, however, is a frequent cause. The symptoms of inanition may vary widely. There may be merely weakness, constipation and weight loss, or there may be diarrhea, vomiting and irritability. The mechanism by which inanition causes the symptoms of dyspepsia is discussed.

Phosphorus in Blood of New-Born.—Reisenfeld et al. made 1,439 inorganic phosphorus determinations on the blood of mothers and their new-born infants. The inorganic phosphorus of the blood of the new-born infant was not affected by the previous habitat of the mother (that is, in the tropics or temperate zone). The time the mother spent out of doors during gestation showed no influence whatever on the inorganic phosphorus of the infants' blood. The diet of the mother was one of the controlling factors of the inorganic phosphorus content of the blood of the new-born infants. A definite seasonal variation of inorganic phosphorus was noted, which is in harmony with the recognized seasonal incidence of rickets. The curves of available sunlight hours and inorganic phosphorus of the new-born infant are parallel in the latter half of the year, the points of resemblance in the sunlight curve preceding that of the inorganic phosphorus curve by one month. The curve representing relative humidity, a hitherto uncorrelated factor, when compared with the inorganic phosphorus curve of the new-born infant, shows a striking parallelism throughout the year, the points of resemblance preceding the latter by two months. The close relation between relative humidity and the inorganic phosphorus content of the new-born infant's blood is explained as an accentuation of the effects of the ultraviolet rays by removing minute particles which act as a ray filter from the atmosphere.

Intraperitoneal Transfusion of Citrated Blood.—The effect of an intraperitoneally produced plethora of citrated blood on the hematopoietic activity of the bone marrow was studied by Sansby. It was found to have an inhibitory effect similar in nature to that produced when the citrated blood was introduced by the intravenous route. This substantiates further the viability of the red blood cells introduced by intraperitoneal transfusion.

Urobilin Excretion in Anemic Children.—From the series of cases studied by Merritt, in which the urobilin values are markedly lower than in the series of Bass, Denzer and Herman, it does not seem that the estimation of urobilin in children is as valuable a method as it is in adults, since there is often no marked increase when the clinical picture and blood findings would make the presence of blood destruction probable. There is little consistency either in the type of anemia or in the age of the child, as to the urobilin findings.

Leukocytosis in Pertussis.—Seitz reports two cases of pertussis with unusually high leukocyte counts. In one case the highest number was 192,000 per cubic centimeter; polymorphonuclears, 28 per cent.; lymphocytes, 61 per cent. In the other case, the peak was 162,500 leukocytes; 24 per cent. polymorphonuclears and 74 per cent. lymphocytes.

Carbohydrate Metabolism of Normal Infant.—From a review of the literature and their own results, Tisdall, Drake and Brown conclude that the average fasting blood sugar concentration in normal infants usually does not vary more than from 0.075 to 0.095 per cent. In the sixty-eight cases reported, the average value was 0.085 per cent.

Craniotabes Is Rachitic Manifestation.—Among 193 infants under 1 year of age, Moore and Dennis found cranial softening in 62 per cent. These cases indicated that craniotabes is rachitic.

Gummatous Osteoperiostitis of Skull.—In a series of 100 cases of congenital syphilis analyzed by Dunham, two children have presented themselves with gummatous osteoperiostitis of the skull, in addition to other lesions of congenital syphilis. The bones and skin were involved without evidence of involvement of the brain or meninges. The lesions healed rapidly under general antisyphilitic treatment.

American Journal of Anatomy, Philadelphia

36: 185-393 (Nov.) 1925

Origin of Germ Cells in Trionyx. C. S. Simkins, Memphis, Tenn.—p. 185.
Mitochondrial Elements of Spinal Ganglion Cells of Beriberi Fowls. Wen-Chao Ma, Peking, China.—p. 215.
Lineal Growth of Respiratory System During Fetal and Neonatal Life as Expressed by Graphic Analysis and Empirical Formulae. G. J. Noback, New York.—p. 235.
*Hereditary Abnormalities of Viscera; Kidneys, in Descendants of Roentgen-Rayed Mice. H. J. Bagg, New York.—p. 275.
Order, Time and Rate of Ossification of Albino Rat (Mus Norvegicus Albinus) Skeleton. R. M. Strong, Chicago.—p. 313.
Musculature of Human Colon: Taeniae. P. E. Lineback, Atlanta, Ga.—p. 357.
Effect of Different Hydrogen-Ion Concentrations on Mitochondria in Liver Cell. J. T. Scott, Denver.—p. 385.

Hereditary Abnormalities of Viscera.—The inherited abnormalities of the viscera have been noted by Bagg in the descendants of a group of mice treated with comparatively light doses of unfiltered roentgen rays on five consecutive days. The visceral abnormalities are mainly defects of the kidney, which may vary from a partial, to a nearly complete atrophy of one kidney, to the congenital solitary kidney condition, and to complete absence of both kidneys. The right or left kidney may be affected with equal frequency, and there is apparently no sex difference in this respect. Animals with the congenital absence of both kidneys are born alive and are apparently of average weight and development in other respects. They live for about twenty-four hours. Blindness and various defects of the limbs, syndactylism, polydactylism, and especially club feet, are closely associated with abnormalities of the kidneys. One instance of situs inversus viscerum has been noted. Embryologic studies of young from strains with a high incidence of visceral abnormalities have shown that these defects are associated with blood extravasations, especially in the liver and testes, which are similar to those extravasations closely associated with the production of blindness and club feet. Selection has greatly increased the number of animals with visceral abnormalities in the experimental lines. The visceral defects are definitely inherited, are recessive to the normal, and when considered as one of the manifestations of a general tendency to abnormal structure, they approach the mendelian expectation in behavior.

American Journal of Ophthalmology, Chicago

8: 849-928 (Nov.) 1925

Nonoperative and Operative Treatment of Glaucoma. F. P. Calhoun, Atlanta, Ga.—p. 849.
Gonorrheal Ophthalmia Treated with Acriflavine; Activation of Bactericidal Action of This Dye. W. B. Wherry, Cincinnati.—p. 858.
Inflammation of Cornea Caused by Silver Nitrate Solution. J. Fejer, Budapest, Hungary.—p. 863.
Melanosis Oculi. A. B. Reese, New York.—p. 865.
Posterior Chamber Cysts of Iris. J. H. Roth and C. W. Geiger, Kankakee, Ill.—p. 870.
Hyperphoria as Factor in Eyestrain. F. E. Woodruff, St. Louis.—p. 874.
Bilateral Papillitis Associated with Accessory Nasal Sinus Disease and Nephritis. C. W. Tooker, St. Louis.—p. 878.
Exophthalmos; Complication of Nasal Sinusitis. C. F. Yerger, Chicago.—p. 882.
Babbit Metal in Lens Without Lenticular Opacity. D. J. Lyle, Cincinnati.—p. 887.
Binocular Vision After Unilateral Traumatic Aphakia. J. J. Horton, Eagle Pass, Texas.—p. 888.
Puzzling Extra-Ocular Muscle Palsy. W. S. Reese, Philadelphia.—p. 889.

American Journal of Public Health, Albany, N. Y.

15: 943-1040 (Nov.) 1925

Present Status of Influenza Problem. E. O. Jordan, Chicago.—p. 943.
Evolutionary Changes in Seasonal Curve of Birth Rate. L. J. Reed, Baltimore.—p. 948.
Significance of Bacteriophage in Surface Water. L. Arnold, Chicago.—p. 950.
Chemistry of Proteins: Relation to Nutrition. D. B. Jones, Washington, D. C.—p. 953.
Engineering Aspects of Pasteurization. E. B. Phelps, New York.—p. 958.
Value of Health Department Reports. I. V. Hiscock, New Haven, Conn.—p. 963.
Morbidity Statistics. E. H. Lewinski-Corwin, New York.—p. 967.
School Health Examinations. C. E. Buck, Detroit.—p. 972.
Unification of Milk Control in United States. L. C. Frank, Mobile, Ala.—p. 977.
Point of View of City Health Officer. A. O. Peters, Dayton, Ohio.—p. 980.
Relation of Public Health Workers to Industrial Hygiene. J. W. S. McCullough, Toronto, Ont.—p. 984.
Suggestions for Securing Information on Accidental Deaths. S. J. Williams, Chicago.—p. 986.
Survey of Eighty-Six Cities. H. Emerson, New York.—p. 988.

Archives of Otolaryngology, Chicago

2: 417-528 (Nov.) 1925

*Statistical Studies of Children in Chicago Public Schools for Deaf. G. E. Shambaugh, A. K. Hall, E. W. Hagens and J. W. Holderman, Chicago.—p. 417.
Esophageal Findings. C. J. Imperatori, New York.—p. 441.
*Management of Infections of Sigmoid Sinus. O. J. Dixon, Kansas City, Mo.—p. 453.
New Esophagoscope for Flat Foreign Body. H. Kosokabe, Sapporo, Japan.—p. 458.
Present Status of Our Knowledge of Allergy in Its Relationship to Otolaryngology. W. W. Duke, Kansas City, Mo.—p. 460.

Deaf Children.—Exactly one half of the children examined (290) by Shambaugh et al. were found to be congenitally deaf, while the other half had acquired ear trouble. Total deafness existed in 57.9 per cent. of the cases of congenital deafness and in 35.2 per cent. of the cases of acquired deafness. Partial deafness was found in 42.1 per cent. of the cases of congenital deafness and in 64.8 per cent. of the cases of acquired deafness. Vestibular responses were present in 75.1 per cent. of the cases of congenital deafness and in 62.07 per cent. of the cases of acquired deafness. Vestibular responses were absent in 24.9 per cent. of the cases of congenital deafness and in 37.93 per cent. of the cases of acquired deafness. A total absence of vestibular responses and total deafness were found in 17.5 per cent. of the cases of congenital deafness and in 26.2 per cent. of the cases of acquired deafness. Presence of vestibular responses and total deafness were found in 40 per cent. of the cases of congenital deafness and in 8.2 per cent. of the cases of acquired deafness. Absence of vestibular responses and partial deafness were found in 6.2 per cent. of the cases of congenital deafness and in 11.03 per cent. of the cases of acquired deafness. Presence of vestibular responses and partial deafness were found in 34.5 per cent. of the cases of congenital deafness and in 53.8 per cent. of the cases of acquired deafness.

Treatment of Infected Sigmoid Sinus.—Dixon has departed from the radical opening of the sinus, and even when the clinical findings are an infected thrombus with chills, sharp temperature fluctuations, leukocytosis, sweats, etc., he has limited the surgery to uncovering the vessel thoroughly until the normal sinus is reached, inserting a short gauze wick drain—not a pack—and leaving the wound wide open. Cases in which a thrombus has developed following an accidental tear of the sinus and late extremely septic cases are obvious exceptions. If the septic symptoms continue beyond forty-eight postoperative hours, then, without any anesthetic whatever, the exposed sinus can be thoroughly opened and drained. This two stage procedure, when necessary, also has the advantage of reducing the virulence of organisms within the mastoid process.

Boston Medical and Surgical Journal

193: 899-946 (Nov. 12) 1925

Traditions of Medicine in Rhode Island. J. W. Keefe, Springfield.—p. 899.
Duodenal Ulcer; Pyonephrosis. F. Cobb, Boston.—p. 905.
Case of Retroperitoneal Cyst. J. D. Barney, Boston.—p. 908.
Fracture Committee of American College of Surgeons. C. L. Scudder, Boston.—p. 911.
*Morbidity and Mortality of Diphtheria. D. M. Lewis, New Haven, Conn.—p. 913.

193: 947-996 (Nov. 19) 1925

Handbook for Health Examinations by Physicians. J. Garland, Boston.—p. 947.
*Obstruction of Common Duct Among 1,000 Operations on Gallbladder and Bile Ducts. P. Truesdale, Fall River, Mass.—p. 968.

Relation of Measles to Diphtheria.—Lewis contends that measles frequencies are followed by increase of diphtheria cases. An increased morbidity from diphtheria occurs through the production of a tide of nasal carriers, and the isolation of these as well as of the avirulent nasal carriers during measles prevalence produces decreased morbidity of diphtheria. Diphtheria mortality would seem dependent in

the main on measles epidemics for its excesses and variations. There would seem to be a factor bound up in measles operating later in time or even independently at occasional periods. Lewis is of the opinion that the same streptococcal complications as kill in measles, bronchopneumonia, etc., may likewise later take a similar toll from diphtheria. The important point to be established is that such streptococcal manifestations are not simulators as well as complicators. If they are never primary invaders and can gain their virulence only through their action as complicators, the theory of laboratory control by specific vaccination may control specific diseases.

Obstruction of Common Duct.—Seventy-five cases of common duct obstruction occurred among the 1,000 cases reviewed by Truesdale. The cause of obstruction in thirty-seven was stone; in twenty-eight it was pancreatitis, almost equally divided between the acute hemorrhagic and chronic types; in six it was cancer of the pancreas, and in four cases, the obstruction was due to traumatic cicatrization of the duct. Among the cases of stone in the common duct there were four deaths, representing an operative mortality of 11 per cent.

California and Western Medicine, San Francisco

23: 1409-1520 (Nov.) 1925

Essentials of Medical Education. W. E. Musgrave, San Francisco.—p. 1409.
California's League for Conservation of Public Health. W. I. Terry, San Francisco.—p. 1419.
Medical Profession and Medical Officers' Reserve Corps. W. E. Musgrave, San Francisco.—p. 1424.
Public Health Aspects of Poliomyelitis. G. E. Ebright, San Francisco.—p. 1428.
Anterior Poliomyelitis; Orthopedic Problem. L. W. Ely, San Francisco.—p. 1429.
Torticollis. W. A. Clark, Pasadena.—p. 1429.
Roentgen-Ray Therapy Installations in California. W. E. Chamberlain and R. R. Newell, San Francisco.—p. 1433.
Gastric Motor Disturbances and Visualization of Appendix. R. C. Shawhan, Los Angeles.—p. 1434.
Roentgen-Ray Diagnosis of Kidney Tumors. M. Brown, Ogden, Utah.—p. 1435.
Suprasymphyseal Cervical Cesarean Section; Fourteen Cases. J. Vruwink, Los Angeles.—p. 1437.
Treatment of Morbid Fear. S. D. Ingham, Los Angeles.—p. 1441.
Mucocele of Frontal Sinus Caused by Osteoma. J. A. Bacher, San Francisco.—p. 1444.
Blood Transfusion. G. H. Juilly, San Francisco.—p. 1445.

Iowa State Medical Society Journal, Des Moines

15: 573-628 (Nov.) 1925

*Acute Poliomyelitis Treated with Rosenow's Serum. H. R. Sugg, Clinton.—p. 573.
Rabies; Fatal Case After Pasteur Treatment. T. A. Moran, Melrose.—p. 577.
Massage and Movements in Treatment of Fractures. W. Darrach, New York.—p. 582.
Interpretation of Cough Symptom. F. J. Kalteyer, Philadelphia.—p. 585.
Relationship of Chronic Infection of Gallbladder to Disease of Cardiovascular System. F. A. Willius and J. M. Fitzpatrick, Rochester, Minn.—p. 589.
Intracapsular Extraction of Cataract by Barraquer Method. O. Wolfe, Marshalltown.—p. 592.
High Myopia as Degenerative Process. H. J. McCoy, Des Moines.—p. 597.
Treatment for Fistula Following Dacryocystectomy. S. G. Hands, Davenport.—p. 598.
Rectal Examinations in Obstetrics. C. Coldren, Milford.—p. 600.
History and Origin of Syphilis. R. E. Jameson, Davenport.—p. 606.

Rosenow's Serum in Acute Poliomyelitis.—Sugg does not draw any conclusions from his observations in thirty-seven cases. He merely presents what happened in tabular form as a contribution based on clinical experience, in order that those interested may make their own deductions.

Kansas Medical Society Journal, Topeka

25: 357-394 (Nov.) 1925

*Practical Points in Treatment of Intestinal Obstruction. T. G. Orr and R. L. Haden, Kansas City.—p. 357.
Glucose in Vomiting of Pregnancy. W. H. Weidling, Topeka.—p. 359.
Differential Count in Acute Surgical Infections. A. J. Hinkleman, Oklahoma City.—p. 363.
Criminal from Standpoint of Physician. M. S. Gregory, Dighton.—p. 365.
Alkalosis in Pernicious Vomiting of Pregnancy; Case. H. E. Marchbanks, Pittsburgh.—p. 371.

Treatment of Intestinal Obstruction.—The following suggestions are made by Orr and Haden for the treatment of acute intestinal obstruction: (1) In the very toxic patients at least 1 gm. of sodium chlorid per kilogram of body weight (1 gm. for each 2.2 pounds) should be given as an initial dose. This is best given in 2 or 3 per cent. solution subcutaneously and 5 per cent. intravenously. With both methods the solutions should be given slowly. (2) In the severely toxic and dehydrated cases, treatment with salt solution should always be given before operation and continued immediately after operation. At least five liters of water should be given with the salt in the first twenty-four hours. (3) As a general guide to the treatment of intestinal obstruction, the five factors to be remembered are, the mechanical obstruction, dehydration, starvation, toxemia and drainage of the obstructed bowel.

Michigan State Medical Society Journal, Grand Rapids

24: 567-640 (Nov.) 1925

Problems Relating to Liver and Biliary Ducts. G. W. Crile, Cleveland.—p. 567.
History and Examination of Patient. I. From Medical Point of View. R. S. Morris, Cincinnati.—p. 571.
Id. II. From Surgical Point of View. C. L. Starr, Toronto, Ont.—p. 574.
Id. III. From Ophthalmologic and Otolaryngologic Point of View. J. A. Stucky, Lexington, Ky.—p. 578.
Id. IV. From Pediatric Viewpoint. I. A. Abt, Chicago.—p. 580.
Id. V. From Public Health Viewpoint. H. F. Helmholz, Rochester, Minn.—p. 585.
Cysts of Pancreas; Case. H. Vandeventer, Ispheming.—p. 586.
*Treatment for Asthma and Related Anaphylactic Diseases. G. L. Waldbott, Detroit.—p. 588.
Hemorrhoids. E. G. Martin, Detroit.—p. 593.
Ocular Changes in Renal Disease. R. J. Sisson, Detroit.—p. 594.
Rupture of Gallbladder. C. Georg, Jr., Ann Arbor.—p. 595.
Staphylococcus Meningitis Limited to Spinal Canal; Puncture of Cisterna Magna. F. W. Garber, Jr., Muskegon.—p. 597.
Activating Factors in Pulmonary Tuberculosis. R. S. Berghoff, Chicago.—p. 599.
"Those Good Old Times," as Seen by Physician. J. G. R. Manwaring, Flint.—p. 603.
Case of Shoe Dye Poisoning. S. A. Sheldon, Saginaw.—p. 610.

Roentgen-Ray Irradiation over Spleen in Anaphylactic Diseases.—Waldbott believes that his results in ten cases are sufficiently conclusive evidence to warrant further investigation into the value of roentgen-ray irradiation over the spleen in anaphylactic diseases. It is believed that with this method a cure can be facilitated by stimulation of the function of the spleen which is greatly involved in the production of antibody. In order to interpret any results from this treatment, it is essential that the diagnosis of anaphylactic asthma must be definitely established, since other types of "asthma," i. e., thymus enlargement or chronic bronchitis, cannot be expected to be benefited.

Minnesota Medicine, St. Paul

8: 653-706 (Nov.) 1925

Lowering of Mortality in Treatment of Toxic Adenoma of Thyroid. T. L. Chapman, Duluth.—p. 653.
Diagnosis of Rickets; Conditions Simulating This Disease. W. H. Cole, St. Paul.—p. 655.
Errors in Cardiac Diagnosis. M. H. Nathanson, Minneapolis.—p. 661.
*Acute Arteriomesenteric Ileus. E. M. McLaughlin, Winona.—p. 670.
*Skin Diphtheria. A. Friedel, Minneapolis.—p. 671.
Acute Pancreatitis. R. R. Cranmer, Minneapolis.—p. 675.
Splenectomy for Hemolytic Jaundice: Case. A. E. Wilcox, Minneapolis.—p. 682.
Tumors of Testis. F. C. Schuldt, St. Paul.—p. 686.

Acute Arteriomesenteric Ileus.—McLaughlin is of the opinion that acute arteriomesenteric ileus may be a more frequent cause of postoperative vomiting than is generally supposed. He reports two cases—an appendectomy and a cholecystectomy—in which this complication occurred. The treatment consists in elevating the foot of the bed and gastric lavage.

Skin Diphtheria.—Friedel is convinced that skin diphtheria would be found more often if cultures were taken from slow healing wounds. He reports two cases in each of which a finger was the seat of the infection. In one of the cases the knee and dorsum of the foot were also affected. In this case, treatment consisted in removing the necrotic tissue with a sterile applicator and applying 10 per cent. silver nitrate once a day.

Missouri State Medical Association Journal, St. Louis

22: 417-450 (Nov.) 1925

*Traumatic Fractures of Vertebral Column. S. Moore, St. Louis.—p. 417.
*Tooth Destruction in Pregnant Woman and How to Control It. W. Kerwin, St. Louis.—p. 422.
Steinman Pin Traction for Fracture of Leg. W. Rainey, St. Louis.—p. 425.
Nontuberculous Hip of Early Life. J. A. Key, St. Louis.—p. 429.
Frequency of Insulin Dosage and Increased Threshold. H. E. Marchbanks, Pittsburg, Kan.—p. 434.

Traumatic Fracture of Vertebral Column.—Experience has convinced Moore that traumatic fractures of the vertebral column unaccompanied by cord or nerve symptoms are very frequently unrecognized until accidentally discovered in the course of a roentgen-ray examination made on account of pain and stiffness of the back, or pain referred to some other part of the body. Limitation of motion or stress bearing capacity of any vertebra affects the entire column. Spinal rigidity or weakness is a major disability increasing in importance as descent in the social scale occurs. Accurate, early roentgen-ray diagnosis of questionable cases is essential, since the results are so disastrous if correct treatment is omitted.

Tooth Destruction in Pregnancy.—Kerwin urges that all necessary dentistry during pregnancy should be done regardless of the duration of pregnancy. The aim at tooth preservation is one of the obstetrician's duties. Better teeth can be given to the new-born by proper prenatal care. Pregnant women should use frequently an alkaline mouth wash and take calcium throughout the pregnancy.

Nebraska State Medical Journal, Norfolk

10: 409-452 (Nov.) 1925

Ductless Gland Disorders. W. Engelbach, St. Louis.—p. 409.
Anuria. W. A. Myers, Kansas City, Mo.—p. 415.
Colitis. A. Sachs, Omaha.—p. 419.
Blindness Which Could Have Been Prevented. J. M. Patton, Omaha.—p. 426.
*Malignant Degeneration of Parotid Cell Nest in External Auditory Canal. A. F. Tyler, Omaha.—p. 431.
Treatment of Infantile Paralysis. H. W. Orr, Lincoln.—p. 434.
Reconstructive Surgery. C. C. Johnson, Lincoln.—p. 435.
Acute Retrobulbar Optic Neuritis of Paranasal Sinus Origin. W. A. Cassidy, Omaha.—p. 439.
Management of Hypertension. G. P. Pratt, Omaha.—p. 440.
*Hemophilia; Two Cases. M. G. Wohl, Omaha.—p. 442.

Cylindroma of External Auditory Canal.—Tyler reports a case of cylindroma of the external auditory canal which contained microscopic evidence of parotid tissue. The microscopic findings support the theory that the mucoid material found in cylindromas is really a secretion of the cells making up the parenchyma of the tumor rather than the result of hyaline degeneration as advocated by some. The presence of parotid cells in the tumor bears out the theory that this particular tumor arose at the site of a parotid cell nest in the wall of the external auditory canal.

Administration of Liver Extract in Hemophilia.—A fresh extract from the rabbit's liver, which is rich in thrombokinase, was used by Wohl in checking hemorrhage in two cases, after all conventional methods had failed.

New Jersey Medical Society Journal, Orange

22: 407-454 (Nov.) 1925

Surgical Surprises. W. P. Glendon, Bridgeton.—p. 407.
Dermatology; Its Relation to General Medicine. H. J. F. Wallhauser, Newark.—p. 416.
Negativism in Childhood. J. H. Marcus, Atlantic City.—p. 424.

New Orleans Medical and Surgical Journal

78: 259-340 (Nov.) 1925

Disabilities of Shoulder Girdle. J. T. O'Ferrell, New Orleans.—p. 259.
Roentgen-Ray Diagnosis of Osteomyelitis. L. J. Williams, Baton Rouge, La.—p. 267.
Mental Hygiene. C. P. May and M. H. May, Jackson, La.—p. 269.
Routine Examination of Eyes in General Diagnostic Clinic. M. F. Meyer, New Orleans.—p. 272.
Treatment of Acute Empyema. E. L. Irwin, New Orleans.—p. 275.
Partnership in Health. W. R. Redden, Washington, D. C.—p. 284.
Modified McReynolds Operation for Pterygium. A. Whitmire, New Orleans.—p. 289.
Purveying of Food Stuffs in Louisiana. O. Dowling, New Orleans.—p. 291.
Heterophoria. R. C. Young, Shreveport, Miss.—p. 298.
Organization and Operation of City Health Department. J. J. Durrett, Memphis, Tenn.—p. 303.
Gallbladder. A. E. Gordin, Jackson, Miss.—p. 306.
Normal Size of Thoracic Aorta. A. E. Fossier, New Orleans.—p. 318.

New York State Journal of Medicine, New York

25: 1019-1054 (Nov. 15) 1925

*Surgical Treatment of Cancer; Results. G. W. Crile, Cleveland.—p. 1019.
*Present Status of Treatment of Cancer. B. T. Simpson, Buffalo.—p. 1022.
Roentgen Ray in Cancer Therapy. B. F. Schreiner and B. T. Simpson, Buffalo.—p. 1025.

Results of Cancer Treatment.—Of 3,414 cases of cancer reviewed by Crile, in which treatment was by all methods, only 926 patients have been heard from, and of these 208 have survived a period of five years or over. One hundred and forty-five of these were breast cancers; fifteen were thyroid cancers and eleven each were cancers of the stomach and of the large intestine, including the rectum. Fifteen were uterine cancers—eight of the cervix and seven of the fundus.

Status of Treatment of Cancer.—Simpson says that it is evident that the unfavorable results obtained in the treatment of cancer of the breast are due to premature metastases. These, most probably, are brought about by excessive handling of the tumor by the patient, and very often by a too vigorous examination by the physician. Simpson urges that there should be instituted a widespread educational attack on this aspect of breast cancer. The danger of manipulation should be brought home, not only to the laity, but also to the medical profession. It should be impressed on the latter that it is not always necessary to make a definite clinical diagnosis of cancer. The presence of a tumor in the breast, whether it is malignant or not, is sufficient evidence to justify an immediate operation.

Oklahoma State Medical Association Journal, Muskogee

18: 253-278 (Nov.) 1925

Orthostatic Albuminuria. T. H. McCarley, McAlester.—p. 253.
*Perinephritic Abscess. J. Z. Mraz, Oklahoma City.—p. 256.
*Acute Nephritis Following Peritonsillar Abscess. J. G. Smith, Bartlesville.—p. 261.
Routine Postoperative Care. J. M. Byrum, Shawnee.—p. 262.
Arterial Accidents in Brain. A. D. Young, Oklahoma City.—p. 264.
Possibilities of Cooperation. A. C. McFarling, Shawnee.—p. 265.

Perinephritic Abscess.—Eleven cases of this type are reported by Mraz. Three were leftsided and eight rightsided; six can be classed as metastatic; four, as of renal origin and one, an extension from an inflamed retrocecal appendix. Four of the six metastatic cases gave a definite history of peripheral infections just prior to or at the time of beginning of symptoms. Two of the eleven patients sustained an injury at the time of beginning of the trouble. One of the injuries was of metastatic and the other of renal origin. Needling was performed in six cases; in two the pus was not located. In one of these the pus was later found anterior to the lower pole and in the other at the upper pole of the kidney. Incision and drainage were done in each case. There were no deaths.

Acute Nephritis Following Peritonsillar Abscess.—Smith reports three cases in which an acute glomerular nephritis manifested itself about two weeks after the patients had recovered from a peritonsillar abscess.

Philippine Journal of Science, Manila

28: 173-310 (Oct.) 1925

*Dysentery Carriers in Philippine Islands. A. Vazquez-Colet.—p. 173.

Dysentery Carriers in Philippines.—The existence of healthy carriers of *B. dysenteriae* in the Philippine Islands has been demonstrated by Vazquez-Colet. The proof was carried out by isolation of cultures which, according to standard methods of identification, proved to be *B. dysenteriae*. In 3,328 examinations fourteen carriers were found, of whom seven harbored the Shiga type, six the Flexner type, and one both Flexner and Shiga types. Agglutination tests were performed with the carriers' serums and with the corresponding culture isolated from the carriers, as well as with stock cultures of the Shiga and the Flexner types. Usually the serum of the carrier agglutinated its own strain to a lesser degree than the stock cultures, and at times a considerable inhibi-

tion zone was noticed with the carrier's serum and its own strain. All of the cultures belonging to the Shiga type isolated from the carriers were pathogenic for white mice, and some of them were strongly toxic to rabbits. The cultures belonging to the Flexner type, isolated from carriers, were found to be of low virulence.

Tennessee State Medical Association Journal, Nashville

18: 121-150 (Sept.) 1925

Surgical Clinics of Continent and Notes on British Medical Association. W. D. Haggard, Nashville.—p. 121.
*Instrument Used by Ancients to Overcome Visual Defects. O. J. Porter, Columbia.—p. 131.
Snake Bites; Treatment; Cases. R. F. Regester, Nashville.—p. 133.
Minor Head Injuries; Case. K. S. Howlett, Franklin.—p. 138.
Things That Count. C. P. Fox, Greeneville.—p. 143.
Practical Value of Slitlamp. A. J. Bedell, Albany, N. Y.—p. 146.

Ancient Instrument to Overcome Visual Defects.—In an old cave Porter found a piece of copper ore rock which he thinks was used by prehistoric man to meet, in a most helpful measure, the afflictions of myopia, hypermetropia and astigmatism.

Virginia Medical Monthly, Richmond

52: 475-544 (Nov.) 1925

Contributions of Ophthalmic Science to Progressive Medicine. H. H. McGuire, Winchester.—p. 475.
Relation of Quackery to Scientific Medicine in Virginia. I. Peirce, Tazewell.—p. 479.
Racial Improvement. W. A. Plecker, Richmond.—p. 486.
Problem of Rural Medicine. F. H. Smith, Abingdon.—p. 490.
History and Symptoms in Diagnosis of Pulmonary Tuberculosis. D. R. Lyman, Wallingford, Conn.—p. 495.
Appendicitis in Children. C. S. White, Washington, D. C.—p. 499.
Clinical Significance of Hemorrhage from Rectum. W. L. Powell, Roanoke.—p. 503.
Intravenous Mercurochrome-220; Case Reports. W. M. Bowman, Petersburg.—p. 504.
Relation of Surgeon to Roentgenologist, Pathologist and Follow-Up Record. G. C. Cooke, Winston-Salem, N. C.—p. 508.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

9: 545-608 (Nov.) 1925

Miners' Nystagmus. T. L. Llewellyn and others.—p. 545.

British Journal of Radiology, London

30: 361-398 (Oct.) 1925

Curietherapy of Epitheliomas of Tongue and of Their Following Adenopathy. C. Regaud.—p. 361.
General Principles of Radium Surgery. A. Bayet.—p. 368.
Direct Signs of Duodenal Ulcer. H. H. Berg.—p. 372.
Radiography and Practice of Dental Surgery. F. Colver.—p. 377.
Localization of Brain Tumors by Ventriculography. J. W. Pierson.—p. 384.
Reaction of Skin to Radium Exposure Repeated After Varying Lengths of Time. J. C. Mottram.—p. 387.

British Medical Journal, London

2: 775-822 (Oct. 31) 1925

*Treatment of Insomnia. R. Hutchison.—p. 775.
*Prophylaxis of Mental Disorder. H. Rolleston.—p. 781.
*Rheumatic Infection in Childhood: Early Diagnosis and Preventive Treatment. F. J. Poynton.—p. 788.
Id. II. R. A. Askins.—p. 791.
Diagnosis of Lung Conditions. T. M. Allison.—p. 796.
*Puerperal Insanity. E. A. Wilson and T. Christie.—p. 797.
Poisoning by Copper Salts in Bread. T. H. Gardner.—p. 798.
Pregnancy After Threading Both Fallopian Tubes with Catgut. J. C. M. Martin.—p. 799.

Treatment of Insomnia.—Dyspepsia, constipation and flatulence, either in the stomach or colon, in Hutchison's opinion, are common but usually overlooked causes of insomnia. It may, therefore, be worth while, when no physical cause for the insomnia is evident to try the effect of an alkaline carminative draught at bedtime. Mental discomfort, which will usually take the form of some anxiety state, is another factor in the etiology of this condition. Hutchison believes it to be cant to say that hypnotics should only be used in insomnia as a last resort. He suggests that the fear of establishing a "habit" is a bugbear, and that the possibility of the insomnia becoming a habit is a much more real danger. There are few cases of bad insomnia in which the prescription of an hypnotic is not required at some stage or other. There is a large choice of drugs for this purpose, ranging in potency from the bromids to phenobarbital. The bromids are only indicated in the mildest cases, but the urea bromin compounds are better. Of the more potent drugs the barbital group is, on the whole, the best and barbital sodium, in 7½ grain (0.5 gm.) doses, will meet most indications. Paraldehyd has the disadvantage of advertising itself too openly, but chloral has probably fallen too much into disuse. It has the drawback of irritating the stomach, but that can be overcome by suitable methods of administration, and although it is perhaps wise to avoid it in cases of myocardial degeneration it is otherwise quite safe. Chloralamid is too uncertain in its time of action to be relied on. Of the other hypnotics, trional, from its somewhat delayed action, is specially indicated in those cases in which the patient is awake only in the latter part of the night (so-called internocturnal insomnia). Sulphonal though largely used in asylums is inferior to trional. Phenobarbital is unnecessarily powerful for use except in exceptional circumstances, and morphin should never be administered in primary insomnia outside a mental hospital.

Prophylaxis of Mental Disorder.—In order to disarm popular prejudice, Rolleston would label the psychiatric clinic "Nervous and Psychiatric Department." It should be part of a general hospital, closely connected with a university, so as to provide facilities for research and for teaching medical students, and it would appear that in addition students interested in the experimental and other aspects of psychology would benefit from the opportunities thus provided. While a central laboratory in connection with a psychiatric department attached to a general hospital and a university is the ideal arrangement, psychiatric or mental clinics situated at a distance from university centers should have clinical laboratories for routine work. The prevailing note in the care of early and recoverable patients should be sympathetic conciliation rather than the forbidding coercion—cheerfulness and helpfulness instead of severity and repression.

Rheumatic Infection in Childhood.—The onsets of acute rheumatism in the child, according to Poynton are: (1) cases showing fulmination, the patients readily recognized as being gravely ill; (2) a large group of cases in which sore throat, arthritis, and morbus cordis are the first symptoms; (3) another large group in which chorea and morbus cordis are the beginning symptoms; (4) a group in which chorea only starts the disease; (5) a group in which heart disease alone may take the form of dilatation following sore throat as the cause, and (6) a group in which the rheumatism begins insidiously, usually with multiple symptoms that remit and exacerbate, thus producing the "rheumatic state." Poynton believes the tonsils to be an important site of infection. Skilled enucleation will not prevent a first attack of rheumatism and acute carditis of extreme severity occurring some years later. However, an acute and crippling attack of carditis may directly follow removal of the tonsils in the patient with rheumatism. The successful removal of unhealthy tonsils is a valuable prophylactic step if, undeterred by exceptions, we view the problem on broad lines. Poynton believes that every case must be considered as an entity. He does not favor routine action. He holds that the teeth and gums of children should be kept as healthy as possible, but he can trace no clear connection between acute rheumatism and dental disease in childhood.

Ovarian Extract in Puerperal Insanity.—Five cases are recorded by Wilson and Christie to illustrate the value of the hypodermic injection of ovarian extract in puerperal insanity and possibly in other forms of acute confusional insanity. It probably acts by bringing about the reestablishment of menstruation, because if the patient can be got to menstruate her difficulties are over. The mental breakdown is due to a temporary deficiency in ovarian secretion, a deficiency that can be made up.

Irish Journal of Medical Science, Dublin

289-336 (July) 1925

Lethargic Encephalitis. "Sleepy Sickness." W. M Crofton.—p 291.
*Infant Mortality in Dublin. B. Crichton.—p. 302.
Otorrhea. J. H. Pollock.—p. 306.

Infant Mortality in Dublin.—The infant mortality, i. e., deaths under 1 year, per thousand births in Dublin, in 1924, was 116, compared to sixty in London. This, Crichton feels, is due to bad housing, lack of food (due largely to unemployment) and ignorance.

Journal of Pathology and Bacteriology, Edinburgh

28: 541-717 (Oct.) 1925

*Bacteriology of Subacute Infective Endocarditis. H. D. Wright.—p. 541.
Effect of Hemorrhage on Hemolytic Titre of Serum of Rabbits. J. Mills. —p. 579.
*Complement Fixation with Bilharzia. I. Lipoidal Nature of Cercarial Antigen as Used in Complement Fixation Test for Mammalian Bilharziasis. N. H. Fairley.—p. 591.
*Normal Weight of Human Thymus. A. B. Bratton.—p. 609.
*Liver Necrosis and Cirrhosis Produced Experimentally by Coal Tar. J. Davidson.—p. 621.
*Early Phases of Cell Injury; Mitochondria. J. L. Smith and T. Rettie. —p. 627.
*Tuberculous Guinea-Pigs and Diaplyte Tubercle Vaccination. J. S. C. Douglas, J. W. Edington and F. W. Simson.—p. 633.
*Blood Cells of Rabbit After Splenectomy. R. H. Mole.—p. 637.
*Action of Convulsant Thujone. H. Florey.—p. 645.
Preservation of Testes for Transplantation in Rabbits and Dogs. N. M. Shustrov, S. G. Karpova and I. V. Tikhomirov.—p. 651.
Diphtheria Toxin-Antitoxin Flocculation (Ramon) Test. P. J. Maloney and C. B. Weld.—p. 655.
Simple Apparatus for Obtaining Plate Cultures of Anaerobes. W. J. Wilson.—p. 673.
Types of Coliform Organisms Found in Trachea and Bronchi in Seventy Unselected Post Mortems in Man; Agglutination of Bacilli of Friedlaender Type. N. D. Ball.—p. 674.
Unusual Serum Agglutination in Case of Typhoid Fever. J. F. Taylor. —p. 675.
Variations in Platelet Count After Splenectomy in Acholuric Jaundice. S. C. Dyke.—p. 677.

Bacteriology of Subacute Infective Endocarditis.—The results of Wright's study may be summed up in the following way: When the blood culture has been positive the bacteria are readily demonstrated in the valve lesion. When there has been a terminal invasion by a pyogenic organism there are usually features in the lesions which suggest that this has occurred. In the nonbacteremic cases bacteria are present in the vegetations in the characteristic position but they seem to differ somewhat in appearance from those seen in bacteremic cases, the differences being such as to suggest that they are undergoing disintegration. While these changes are to be observed to some extent in all cases, they are particularly characteristic of the nonbacteremic cases. In one of these, as evidenced by six negative blood cultures, the condition had lasted for seventeen months. It must be supposed, then, that the organisms may remain in situ for a very long period without appearing in the blood stream. This may be due to the fact that the organisms are dead or that they are prevented from reaching the blood stream by the physical barrier of the thrombus material separating them from it. At the same time they are protected from the phagocytic cells by the same barrier. Consequently, a process of removal by solution or autolysis is necessary and is apparently a very tardy one. Whether the process ever does go on to complete removal and subsequent healing by fibrosis still remains doubtful, but it would appear to be quite possible, though apparently rare. It is clear that disappearance of the septicemia is by no means a cure of the disease which is always fatal in both septicemic and nonsepticemic cases. It is possible that in some of these cases there has never been a septicemia. In others it may have disappeared after a time and the bacteria may have remained in the valve lesion. Cure of the disease would mean the complete obliteration of the focus. Finally, it appears likely, although further evidence is necessary, that the organism responsible for the nonbacteremic cases is of the same nature as that in the septicemic cases, a streptococcus.

Complement Fixation with Bilharzia.—Fairley asserts that the antigen which reacts with specific antibody in the complement fixation reaction for bilharzia is a lipoid or lipoidal complex of colloidal nature. Many of the experimental observations enumerated in this paper are in complete disagreement with the published data of Le Bas, who would identify the antigenic factor in bilharzia antigen with the protein or allied constituents of these extracts.

Normal Weight of Thymus.—The records of 337 healthy persons under 16 years of age, who died either from an acute medical or surgical condition within twelve hours of its onset, or immediately after or within a day of some accident to which death was directly attributable, were reviewed by Bratton with reference to the weight of the thymus. It was found that the absolute weight of the thymus increases rapidly during the first two years of life, then changes little (with a tendency to decrease) till the seventh year, when it again increases, to fall slightly after the eleventh year. The weight of the thymus increases relatively to the body for part of the first six months and then decreases rapidly; after the fifth year the relative decrease continues at a slower rate and is apparently interrupted by a transitory increase during the eighth year. The thymus in the male is heavier at birth and for the first four years of life, after which the weight is approximately equal in the two sexes till the eleventh year, except that a rise and fall about the eighth year occurs in the female; after the eleventh year the thymus tends to be absolutely heavier in the female. There is little difference in the weight of the gland relative to the body in the two sexes; in general it is greater in the male during the first five years of life and afterward in the female. The absolute and relative weights are slightly greater in Jewish than in British children, but the differences are too small to be considered significant.

Experimental Tar Necrosis and Cirrhosis of Liver.—The investigation described by Davidson was undertaken because, in experiments in which coal tar had been applied to the skin of rabbits' ears to produce cancer, it was found that in several of the animals cirrhosis of the liver had supervened. The acute changes are similar to those found in acute yellow atrophy in man. The chronic changes, including regeneration of the liver, closely resemble those of typical atrophic cirrhosis. These observations suggest that the changes observed in acute yellow atrophy and atrophic cirrhosis of the liver are different stages in one process. The regenerated tissue is still susceptible to the irritant. The arrangement of the cells in the regenerated tissue is irregular and in some instances adenomatous growth occurs.

Rôle of Mitochondria in Cell Injuries.—The main conclusion that follows from the observations made by Smith and Rettie is that cell degeneration (cloudy swelling and fatty degeneration) involves a destruction of the mitochondria. These results confirm Cowdry's general conclusion that in changes in mitochondria are to be found the earliest indications of cell injury. The recovery of a cell from degeneration involved a rebuilding of mitochondria and restoration may take place if the damage has not been too severe. It still remains to determine not only the limits of destruction from which recovery may take place but also the conditions that are favorable or essential to the process.

Value of Diaplyte Tubercle Vaccine.—Experiments were made by Douglas et al. to determine whether in tuberculous guinea-pigs diaplyte tubercle vaccine might show any beneficial effect when used over long periods, its administration being begun before, simultaneously with or after the infection of the animals with tubercle bacilli. The results obtained in these experiments correspond very closely with those already recorded by Kettle, Schutze and Bronfenbrenner and Straub. The conclusion which may be drawn is that weekly doses of 0.5 c.c. of diaplyte tubercle vaccine, derived from a strain of tubercle bacilli other than that employed by Dreyer, whether used as an immunizing agent previous to the production of a tuberculous infection, or given as a curative agent from the date of the production of the tuberculous infection, or given after the tuberculous lesions have become well established, is of no avail for combating, in guinea-pigs, tuberculosis resulting from infec-

tion with living bacilli of the same strain as that which was used for the preparation of the diaplyte vaccine.

Effect of Splenectomy on Erythrocytes.—Mole removed the spleen or half of it in seventeen rabbits and studied the effect of this on the number of erythrocytes, the number of reticulated erythrocytes, the resistance of the erythrocyte to hypotonic saline and saponin solutions and the number of white cells. Usually a decrease in the number of erythrocytes occurred almost at once; in about a week they began to increase and in two months they were usually more numerous than before the operation. The decrease was usually less marked and the increase began earlier and was more marked after partial splenectomy. The erythrocyte decrease was associated with a considerable reticulocyte increase during the first two weeks, suggesting that the increase in erythrocytes at this period was due to a persistence of the old cells which would have been destroyed but for absence of the spleen. The increase in the erythrocytes two or three months after splenectomy was associated in rather more than half the rabbits with a slight increase in their resistance to hypotonic saline solution. Their resistance to saponin solution was apparently unchanged. Removal of the whole or half the spleen in adult rabbits produced an increase in the number of white cells, chiefly leukocytes, in the first week. This increase was evidently of inflammatory origin, being more marked and persistent after partial splenectomy.

Action of Thujone.—Florey's observations would seem to justify the conclusion that thujone acts directly (in contradistinction to an immediate action on the cerebral blood supply producing fits) on the motor cells of the cerebrospinal axis, as fits are produced in the intact, the decerebrate and the spinal animal. The vasomotor and the respiratory centers are also vigorously stimulated. The evidence is against the participation of the vagus center in the stimulation.

Bulletin de l'Académie de Médecine, Paris

94: 941-960 (Nov. 3) 1925

Entameba Dispar. n. sp. E. Brumpt.—p. 943.
Tests for Color Sense in Railroad Employees. Schaaff.—p. 952.
*Chlorid-Free Milk in Edema. Carrayrou.—p. 955.
Mechanism of Droplet Contagion. A. Trillat.—p. 956.

Milk Freed from Chlorids in Treatment of Edema.—Carrayrou obtained excellent results using milk freed from chlorids in persons with enormous edema and ascites, from a failing heart. The condition of the patients had remained precarious in spite of different heart tonics and an exclusive milk diet. As soon as the ordinary milk was replaced by milk freed from sodium chlorid and potassium chlorid, the output of urine increased, and the edema disappeared in a few days. The daily output of urine, which had not surpassed 300 gm. in one patient, reached 1,250 gm. after six days of this treatment. The edema reappeared when ordinary milk was used again. Recurring attacks of pulmonary edema were arrested in another case when the modified milk was taken. The same benefit was manifest in nephritis and uremia. Puglia's method of dialyzing the milk allows the passage of all salts and phosphates except sodium chlorid and potassium chlorid. A small quantity of lactose is added in order to replace that retained by the dialyzer, and then the milk is sterilized. This chlorid free milk may prove an effectual adjuvant to tonics in heart and kidney disease.

Bulletins de la Société Médicale des Hôpitaux, Paris

49: 1369-1418 (Nov. 6) 1925

*Etiology of Myasthenia. G. Marinesco.—p. 1369.
Myositis Ossificans. G. Paisseau et al.—p. 1375.
*Radial Paralysis and Acute Rheumatism. Dufour and Blondel.—p. 1380.
By-Effects of Barbital and Its Compounds. Pasteur Vallery-Radot and P. Blamoutier.—p. 1382.
Evolution of Chronic Endocarditis. M. Renaud.—p. 1385.
Serotherapy plus Radiotherapy in Malignant Granulomatosis. Lortat-Jacob et al.—p. 1394.
*Cirrhosis and Bronzing in a Syphilitic. Lévy and Jausion.—p. 1400.
Radiography of Esophagus in Pulmonary Tuberculosis. G. Paisseau et al. —p. 1406.
Recovery in Case of Multiple Sclerosis under Treatment for Syphilis. Paulian.—p. 1416.

Pathogenesis of Myasthenia.—Marinesco reports two cases of myasthenia which may be ascribed to disturbances of the vegetative nervous system, of suprarenal origin. Reduced formation of substances controlling the vascular tonus appears to be responsible for the inverted vasomotor reaction, consisting in dilatation of the vessels during voluntary muscular contractions. This probably affects the acid-base balance of the muscle fibers, stimulating the activity of the hydrolytic and lipolytic ferments, and thus creating lesions of the muscles. The inverted vasomotor reaction was absent in one patient, who improved remarkably under epinephrin treatment, while it existed in the other with still pronounced myasthenia. Changes in the suprarenals may also entail exaggerated functioning of the parathyroids, with consequent hypercalcemia. Subcutaneous and intramuscular injections of epinephrin appeared to be as effectual as the intravenous.

Radial Paralysis of Rheumatic Origin.—Dufour and Blondel describe a case in a man, aged 32. Sudden paralysis of the radial nerve had preceded the acute rheumatism manifestations in the shoulder and wrist. The peculiar feature was the restriction of the paralysis to a single nerve; neuritis complicating rheumatism is usually multiple. The paralysis may have been caused by the virus of the acute articular rheumatism. Salicylate treatment proved effectual.

Cirrhosis of the Liver with Bronzing in a Syphilitic.—Lévy and Jausion report that the skin returned to its normal color under treatment for the syphilis, and the symptoms of mild diabetes subsided with the melanoderma.

Comptes Rendus de la Société de Biologie, Paris

93: 979-1056 (Oct. 30) 1925. Partial Index

*Metabolism with Tar Cancer. A. Remond et al.—p. 979.
*Blood Lipoids with Tar Cancer. A. Remond et al.—p. 981.
Inoculation of Herpes Zoster Virus. Remlinger and Bailly.—p. 983.
Experimental Joint Echinococcosis. F. Dévé.—p. 986.
Tuberculin Test and Cholesteremia. M. Salomon and De Potter.—p. 988.
Water in Acid-Base Balance of Blood. Solano Ramos and L. García Fox. —p. 989.
*Oxygen of Methemoglobin. V. Balthazard and M. Philippe.—p. 991.
Adaptation of Intestine to Epinephrin. Gautrelet and Bargy.—p. 997.
*Ultraviolet Rays and Lymphoid Tissue. J. Jolly.—p. 999.
Influence of Respiration on Sedimentation. Roger and Binet.—p. 1002.
Metabolism Under Various Treatments of Rickets. Schultzer.—p. 1008.
*Mesenteric Tuberculosis in Child. M. Acuña et al.—p. 1014.
Regeneration of Nerve Tissue. P. del Rio Hortega.—p. 1018.
Acid-Base Balance in Emphysema. L. Dautrebande.—p. 1025.
Acid-Base Balance in Tuberculosis. L. Dautrebande.—p. 1028.
Heart Beat Blood Volume in Anemia. L. Dautrebande.—p. 1029.
Paradoxic Alkalosis in Pernicious Anemia. L. Dautrebande.—p. 1031.
Mechanism of Epinephrin Apnea. J. F. and C. Heymans.—p. 1032.
*Acetylene Anesthesia. C. Heymans and J. J. Bouckaert.—p. 1036.
*Acidosis, Alkalosis and Chronaxia. H. de Waele.—p. 1038.
Plasma Fibrinogen in Shock. E. Zunz and J. La Barre.—p. 1042.
*Blood Cholesterol in Shock. E. Zunz and J. La Barre.—p. 1044.
*Lytic Principle and Culture Antigen. E. B. McKinley.—p. 1052.
*Spontaneous and Induced Lysis. J. Bordet.—p. 1054.

Basal Metabolism in Course of Experimental Cancer.—Remond, Sendrail and Lassalle found the basal metabolism reduced in eight rabbits with tar cancer. They are inclined to ascribe the fact to an insufficient functioning of the thyroid gland, caused by the tar, thus favoring the appearance and development of the tumor. Their further research proved that while hypercholesteremia is usual in the precancerous stage, there is a decrease of the free cholesterol and lecithins with a developed tumor. The proportion of fatty acids is increased. The authors point to the recent work of Carrel, Mertens and Lipschütz tending to confirm that tar cancer is rather a tissue manifestation of a general derangement than a product of irritation.

Oxygen Content of Methemoglobin.—Balthazard and Philippe acknowledge their error in agreeing formerly with Jäderholm. After they had repeated Jäderholm's experiment in a vacuum from which oxygen had been completely expelled, it showed that methemoglobin is transformed directly into hemoglobin, without its passing through the stage of oxyhemoglobin. The latter appears to contain twice as much oxygen as methemoglobin.

Action of Ultraviolet Rays on Lymphoid Tissue.—Jolly concludes that the action of ultraviolet rays on lymphoid organs is essentially similar to that of the roentgen and

radium rays. The lesions are confined to the exposed area, not affecting the tissues deeper than 0.5 mm. at most. The latency time is about the same as with roentgen rays and certain toxic substances.

Tuberculous Mesenteric Glands in Young Child.—Acuña and his co-workers observed the case in a child, about 2 years old, whose sister had died from tuberculosis, and who had been in contact with a tuberculosis suspect. It died soon after an exploratory operation showing a mesenteric tumor. Cheesy degeneration of the mesenteric glands, and miliary tuberculosis of lungs and viscera were found on microscopic examination. Infection probably appeared during the first year, and was of intestinal origin. [A more detailed report, with photomicrograms, was published in the *Semana Médica*, **2**:617 (Sept. 10) 1925.]

Acetylene in General Anesthesia.—Heymans and Bouckaert used acetylene for anesthesia in about fifty operations, lasting from a few minutes to three hours. The usual initial phase of excitation did not occur; the patient inhaling the anesthetic deeply went under without resistance or agitation. A combination of 80 per cent. of acetylene with 20 per cent. oxygen, induced insensibility and muscle relaxation in three minutes. The toxic effect of acetylene seemed to be very slight, since the subject wakened rapidly and in a better general condition than after chloroform or ether. The disadvantages of the method, namely the large size of the apparatus, the complicated technic and the inflammability of acetylene are offset by its advantages.

Influence of Acidosis and Alkalosis on Chronaxia.—De Waele injected acids and alkalis into the lymph spaces of frogs and turtles. Chronaxia and rheobasis appeared to be decreased in acidosis, and increased in alkalosis.

Cholesterol Content of Blood in Shock.—Zunz and La Barre's experiments on guinea-pigs repeatedly showed a marked increase of cholesterol in the plasma and total blood, and a slight reduction of fatty acids in the plasma during an anaphylactic shock.

Action of Lytic Agent on Culture Antigen.—McKinley's research confirmed Bordet's theory that the lytic agents are bacterial products, important in the development of cultures. They may modify the specific antigen of the micro-organisms.

Active and Passive Transmissible Lysis.—Bordet experimented with a colon bacillus displaying a lytic action on the Shiga bacillus. No lysis occurred as long as the colon bacillus (A) was exposed to its own lytic element. This represented the normal physiologic condition. Lysis appeared when the colon bacillus (A) was submitted to a lytic element from a certain other variety of the colon bacillus (B). The colon bacillus (A) adapted itself to the new lytic element and continued to reproduce it even after it had been isolated from its influence. This is the spontaneous or active lysis. Exposed to a lytic element from a different species, the colon bacillus reproduced it only as long as the contact persisted, but not otherwise. This is the passive or induced lysis. Bordet assumes that these facts confirm his theory of a transmissible autolysis.

Paris Médical

57: 397-412 (Nov. 14) 1925

Prolonged Acute Bronchitis. G. Rosenthal.—p. 397.
*Sedimentation and Pneumothorax. Papanicolau and Weiller.—p. 400.
*Reaction of Liver to Arsphenamin. L. Masson.—p. 403.
*Tubercle Bacilli in Urine. G. Esquier.—p. 405.
*Ocular Spasms After Epidemic Encephalitis. D. Paulian.—p. 409.

Sedimentation Test as Guide in Artificial Pneumothorax.—Papanicolau and Weiller's observations were made on patients with artificial pneumothorax induced for grave pulmonary tuberculosis. Sedimentation was usually rapid in these cases, but it changed immediately after the operation, becoming notably reduced if the compression involved the most pathologic part of the lung. With imperfect compression, and consequent aggravation of the condition, the speed of sedimentation became rapid again. Appearance of a pleural effusion was accompanied by acceleration of sedimentation. The speed increased still more with a purulent exudate, while it was normal in case of resorption of the pleural fluid. Thus the sedimentation test may demonstrate the effect of an artificial pneumothorax or thoracoplasty, or even reveal menacing complications.

Action of Arsphenamin Injections on the Liver.—Masson states that he has never encountered an instance of toxic jaundice from intramuscular injections of sulpharsphenamin, in his large experience. He reports a case in which these injections apparently cured syphilitic jaundice. Experiments on rabbits indicated that intramuscular injections of arsphenamin are less toxic for the liver than the intravenous. Their action is the same, although somewhat retarded.

Detection of Tubercle Bacillus in Urine.—Esquier used a simplified Gauthier method for examination of the urine in 111 patients. The tubercle bacillus could be detected in over 33 per cent. of the cases of tuberculous epididymitis; in 88 per cent. of tuberculosis of the bladder, and 78 per cent. of renal tuberculosis. He thus showed up the bacilli in five minutes in 95 per cent. of the cases.

Paradoxic Ocular Spasms After Epidemic Encephalitis.—Several of Paulian's patients presented, among other sequelae of epidemic encephalitis and parkinsonism, spasms of the orbicularis muscles. Besides spasmodic retraction and relaxation of the orbicularis palpebrarum and oris, there was speech disturbance of the stuttering type and paradoxic dyskinesia.

Presse Médicale, Paris

33: 1457-1472 (Nov. 4) 1925

Wernicke's Aphasia. C. Foix.—p. 1457.
Immunization by Anatoxin and Bacteriophage. P. Lesbre.—p. 1459.
Remote Results of Epididymectomy. N. Barbilian.—p. 1460.

33: 1473-1488 (Nov. 7) 1925

*Deficiency Disturbances. G. Mouriquand.—p. 1473.
*Sugar Treatment of Epilepsy. S. Wladyczko.—p. 1475.
*"Immunization Against Scarlet Fever." A. Bourcart.—p. 1477.
Iodin in Pulmonary Tuberculosis. Nigoul-Foussal.—p. 1478.
*Treatment of Spastic Ileus. T. Asteriadès.—p. 1480.

Deficiency Diseases.—Mouriquand considers deficiency disturbances from inadequate alimentation, defective digestion or absorption, and from defective nutrition. The latter includes deficient transformation, distribution and assimilation of the elements of the food. Instances of alimentary deficiency are vitamin C deficiency which is manifested by scurvy; vitamin A deficiency, inducing hemeralopia, and vitamin B deficiency, producing the beriberi syndrome. The deficiency of digestive origin is due to insufficient mastication or deglutition, or to obstacles in the gastro-intestinal tract. An insufficient secretion of digestive juices may impede the absorption of the food. Deficient nutrition or deficient metabolism of the cells is provoked by lesions of the liver, suprarenals, and particularly of the bone marrow, the organs controlling the metabolism. In these cases the food may be appropriate, and digestion normal, but assimilation of the alimentary substances will be defective.

Sugar in Treatment of Epilepsy.—Wladyczko induced convulsions in rabbits, mice and dogs by injections of insulin, with the consecutive hypoglycemia. He also noted an increase of epilepsy cases in Russia at a time when the supply of sugar was scarce. Thereupon he tried the sugar treatment in epileptics with hypoglycemia. In eighteen cases the seizures became rarer and milder; in five they appeared only once in from four to six months, while before the treatment they occurred every day in one patient, and three or four times in a month, in the others. Since blood with a reduced sugar content may irritate the nervous centers, causing convulsions, it seems that administration of sugar should prevent them. The effect of sugar may be ascribed also to an enhancing action on drugs, given at the same time. From 50 to 100 gm. of glucose, dissolved in water, with lemon juice, or 200 gm. of sugar was given daily by the mouth. The amount of sugar was reduced to 5-25 gm., when sweet fruits or syrups were being taken.

Immunization Against Scarlet Fever.—Bourcart immunized Dick positive subjects by repeating the Dick test on new areas of skin at two or three days' intervals, and keeping this up until the reaction veered to negative. In his thirteen

cases, this occurred after three to nine applications of the Dick test in eleven.

Intraspinal Anesthesia for Spastic Intestinal Occlusion.—Asteriadès says he applied intraspinal anesthesia in three cases of spastic ileus, following abdominal operations, and the complication subsided promptly. Thus the patient was saved by the intraspinal anesthesia possibly from a futile laparotomy. The spastic occlusion appears suddenly, during the first few days after an operation, while a mechanical occlusion from adhesions or volvulus does not develop until ten to thirty days after the laparotomy. The differentiation from acute peritonitis may be based on the normal pulse and temperature in spastic occlusion. Vigorous peristaltic contractions of the nonaffected portion of the intestine above the region of the spasm may be visible sometimes. This is a valuable diagnostic sign when encountered. He used procain for the intraspinal anesthesia; the spasm was arrested at once, and stool was voided explosively in less than two minutes.

Schweizerische medizinische Wochenschrift, Basel

55: 1017-1040 (Nov. 5) 1925

*Cystic Mamma and Its Latency Stage. M. Askanazy.—p. 1017.
Balneology. K. Spiro.—p. 1021.
Subdural Spinal Tumor. O. Veraguth.—p. 1022.
Paradoxic Pulse with Pericardial Effusion. Roch and Frommel.—p. 1027.
Cavernous Hemangioma of the Tongue. H. Baumgartner.—p. 1030.
*Social Hygiene and Mortality. A. Gigon and F. Kinzler.—p. 1033.

Cystic Mamma.—Askanazy deals with the latent stages of cystic epitheliofibrosis of the breast (Reclus' disease). He found them in 33 per cent. of elderly women and in 25 per cent. of girls and women under 40 years of age. The epithelium of the breast is easily irritated, and proliferates in a degree that would arouse suspicions in other organs. Extirpation of the tumor is indicated in the stage of a tubulopapillary cystoma. Extensive intervention is necessary if the spaces are overcrowded with heaps of epithelial cells, containing mitoses, and if lymphocytic infiltration is beginning. There is no question about the malignancy if the epithelium invades the lymphatic spaces of the stroma.

Social Hygiene and Mortality.—Gigon and Kinzler find that the increase in life expectancy in men is smaller in Switzerland than in Germany. It is the opposite with women.

Policlinico, Rome

32: 1485-1520 (Oct. 26) 1925

*Specific Treatment of Typhoid. A. Cavazzuti.—p. 1485.
Meinicke's Microreaction. G. Spicca.—p. 1487.

Specific Treatment of Typhoid.—Cavazzuti reports on the specific treatment of typhoid fever in forty-seven patients. Of the twenty-three subjects treated with a serum, seven died (32 per cent.). Sanfelice's vaccine was used in twenty-four other patients. Three of these died (12.5 per cent.).

32: 1521-1556 (Nov. 2) 1925

Diagnosis of Cardiospasm. A. Knipfer.—p. 1521.
Treatment of Epidemic Encephalitis. M. Faberi.—p. 1524.
*Benzyl Benzoate in Hypertension and Dyspnea. G. F. Capuani.—p. 1526.

Benzyl Benzoate in Hypertension and Dyspnea.—Capuani found that benzyl benzoate lowers the blood pressure in those cases of hypertension which are of purely functional origin. At the same time it causes a general feeling of weakness. It acted well in some of his asthma patients.

32: 1557-1592 (Nov. 9) 1925

Sanocrysin in Treatment of Pulmonary Tuberculosis. Benedetti.—p. 1557.
Cystic Kidneys. E. Sciaky.—p. 1564.

32: 1593-1628 (Nov. 16) 1925

*Diagnosis of Beginning Tuberculosis. D. Maestrini.—p. 1593.
Preventive Vaccination Against Tuberculosis. C. Benedetti.—p. 1599.

Diagnosis of Beginning Tuberculosis.—Maestrini observed in 90 per cent. of beginning or advanced cases of tuberculosis of the apex of the lungs a marked hyperalgesia to pressure at a point of the lesser supraclavicular fossa (between the two lower tendons of the sternocleidomastoid muscle). He regards it as due to a Head's zone.

32: 533-588 (Nov. 1) 1925. Medical Section

Lumbalgia Attributed to Strain. S. Diez.—p. 533.
Acute Anterior Poliomyelitis. M. Acqua.—p. 558.
*Liver and Postencephalitic Conditions. A. Graziani.—p. 573.

Liver and Postencephalitic Condition.—Graziani found in eleven patients with postencephalitic syndromes only very slight, if any, clinical signs of a disturbance of the liver. The anatomic changes at necropsy in three other cases were also only slight.

Riforma Medica, Naples

41: 985-1008 (Oct. 19) 1925

Hygroma of Bursa Subserrata. L. Torraca.—p. 985.
*Coma from Interruption of Insulin Treatment. F. Schiassi.—p. 990.
*Experimental Cancer Vaccination. G. Tizzoni et al.—p. 995.

Coma from Interruption of Insulin Treatment.—Schiassi found a large increase in blood sugar in a diabetic patient as soon as the action of insulin ceased. Administration of a new small dose of insulin reduced the glycemia—probably refilling the glycogen deposits in the liver, which are particularly changeable in diabetes. Simultaneous intravenous injections of glucose in coma not only prevent the danger from hypoglycemia, but also serve to replenish the liver glycogen.

Experimental Cancer Vaccination.—Tizzoni, Centanni and De Angelis exposed an emulsion of cells of Ehrlich's mouse adenocarcinoma to the action of radium. The cells lost their pathogenicity after twenty-four hours, but this emulsion injected near the tumor of other mice, induced its complete resorption. It was ineffective if irradiated for forty hours.

Rinascenza Medica, Naples

2: 489-520 (Nov. 1) 1925

Cholecystography. L. Radice.—p. 489.
Clinical and Necropsy Findings in Case of Hodgkin's Granuloma. I. Nasso.—p. 491.
Actinomycosis of Upper Jaw. C. D'Alise.—p. 494.
*Urine Color Test for Peritonitis. M. Sorrentino.—p. 496.
*Therapeutic Action of Sugar in Certain Dermatoses. P. Conca.—p. 498.
The Practical Value of the Wassermann Test. U. Cavallucci.—p. 500.

Early Sign of Peritonitis.—Sorrentino states that the Sgambati urine test was positive in twenty-four of twenty-five cases of acute peritonitis, sometimes before the clinical manifestations had developed, while he never obtained a positive response in simple contusions and other noninflammatory abdominal affections.

Sugar Treatment in Dermatoses.—Conca reports that intramuscular injection of 2 or 5 c.c. of an 8 per cent. solution of saccharose favorably modified the course of eczema, psoriasis and prurigo in a number of his cases. The smaller doses seemed to act by influencing the endocrine system, the larger by a vasoconstrictor effect. In one young man with an intensely itching eczema on the legs and scrotum of six months' standing, the pruritus gradually subsided completely in two weeks and no further treatment of any kind was required after the fifteenth day.

Revista Médica de Barcelona

4: 233-328 (Sept.) 1925

Magnesium Sulphate by the Vein in Case of Postpartum Eclampsia. S. Dexeus Font.—p. 237.
*Specific Treatment of Malta Fever. P. Domingo.—p. 240.
Treatment of Tinea Tonsurans. J. Soteras y Gibert.—p. 249.
Madelung's Deformity. A. Cortés Llado and L. Salvador Gallardo.—p. 251.
Case of Postoperative Tetanus. A. Oller.—p. 275.
The Prognosis with Arterial Hypertension. C. Soler y Dopff.—p. 278.

Malta Fever.—Domingo remarks that four of his laboratory assistants contracted the disease in their four years of research on melitensis infection, with analysis of 180 cases and extensive animal experiments. Excellent results in treatment were realized with an emulsion of ox-gall-treated melitensis micrococci by the mouth. In rebellious cases, protein therapy proved a useful adjuvant, as likewise epinephrin in cases of hypotension. Of sixty-three patients, 65 per cent. were cured in less than two weeks; 17.3 per cent. required thirty days, and 6.2 per cent. up to forty-five days. There was recurrence only in 11.5 per cent.

Archiv für Gynäkologie, Berlin

126: 291-708 (Oct. 14) 1925

*Metabolism After Milk Injections. W. Butomo.—p. 291.
The "Germinal Path" in Man. S. Kohno.—p. 310.
Duration of Pregnancy. W. Poten and W. Boetticher.—p. 327.
Spontaneous and Provoked Ovulation. R. Hofstätter.—p. 350.
Blood and Glycemia Tests in Women. E. Frey.—p. 383.
Angioplastic Tumors of Vagina. A. Seitz.—p. 488.
Adenomyosis of Uterus. I. Kitai.—p. 496; p. 527.
*Metabolism in Pregnancy. E. Klaften and L. Stecher.—p. 541.
Tubular Adenoma of Ovary and Hermaphrodism. H. O. Neumann.—p. 553.
Polyp of Female Urethra. H. R. Schmidt.—p. 602.
Proliferations of Blood Vessels and Lymphatics. R. Meyer.—p. 609.
*Diagnosis of Univitelline Origin of Twins. H. W. Siemens.—p. 623.
*Ovaries and Blood Calcium. A. Heyn and K. Haase.—p. 646.
Brow Presentation. H. Martius.—p. 671.
Accessory Mammary Glands and Nipples. C. John.—p. 691.

Metabolism After Milk Injections.—Butomo observed an increased elimination of nitrogen and phosphates after parenteral injections of milk in normal dogs and in those infected animals which had had no increased elimination of these substances before the injection. Where the infection had raised the azoturia and phosphaturia, milk injections reduced them. Patients who reacted to protein treatment, with a lowering of the elimination of nitrogen and phosphates, had a favorable prognosis. It was the opposite when the elimination was enhanced.

Metabolism in Pregnancy.—Klaften and Stecher found a low specific dynamic action in too young and in too old primigravidae, also in dropsy and in the kidney disease of pregnancy.

Diagnosis of Univitelline Origin.—Siemens shows how unreliable the history of twin delivery is. Even the cases in which records were kept were not examined sufficiently: The chorion is more important than the placenta. Separate membranes do not disprove the possibility of a univitelline origin: Only a third of these pairs are of different sex (against the expected 50 per cent. if all were bivitelline). The percentage of different sex in all twin pregnancies shows that 25-33 per cent. should be univitelline. This alone speaks for the probability of occurrence of univitelline twins with separate membranes. A careful examination of the twins points also toward this possibility.

Ovaries and Blood Calcium.—Heyn and Haase found high serum calcium figures in grave functional amenorrhea, and low values in the first year after castration. They conclude that these findings cannot be explained by a direct influence from the ovary on the blood calcium.

Deutsche medizinische Wochenschrift, Berlin

51: 1851-1892 (Nov. 6) 1925

*Germ Content of Vaccines. H. Dold.—p. 1851.
Standardization of Dysentery Antiserum. H. Schlossberger and O. Hartoch.—p. 1854.
*Sympathetic Paraganglion on Left Heart. S. Wassermann.—p. 1855.
Malaria Treatment of General Paralysis. Schulze.—p. 1856.
Dry Complement. M. Stern and T. Frank.—p. 1858.
*Treatment of Simple Abortion. K. Fink.—p. 1862.
Anomalies of Labor Pains. W. Hannes.—p. 1866.
*Elective Action of Rays. J. Seide.—p. 1868.
The Blood After Operations. H. Hueck.—p. 1869.
Blood Diseases. W. Steinbrinck.—p. 1870. C'cn.
Precocious Menstruation. R. A. Grillo.—p. 1871.
Cadmium Treatment of Syphilis. Lucke.—p. 1873.
Treatment of Psoriasis. J. Mestschanski.—p. 1874.
Instrument for Venepuncture. E. Weidlinger.—p. 1874.
Heart Remedies. H. Handovsky and R. Seyderhelm.—p. 1875.
Austrian Law Regulating Midwifery. Hammerschlag.—p. 1877.
Social Insurance and Tuberculosis. Blümel.—p. 1878. C'td.
A Law Suit on Telepathy. A. Hellwig.—p. 1879.
Action of Minimal Doses. Buttersack.—p. 1890. C'td.

Germ Content of Vaccines.—Dold finds that a control of commercial vaccines by counting of the germs is impossible and useless. The methods of counting involve grave errors. An estimation of the turbidity is sufficient. The number of germs decreases because of the autolysis, although the antigenic value does not necessarily deteriorate by it.

Sympathetic Paraganglion on Left Heart.—Wassermann draws attention to the chromaffine tissue discovered by Wiesel in the neighborhood of the left coronary artery. Similar to Dünner's explanation of the carotid glomus as a receiving organ for the "vagus pressure experiment," he believes that Wiesel's organ may be the origin of the reflex angina pectoris.

Treatment of Simple Abortion.—Fink denounces the use of sounds, abortion forceps and sharp curet in treatment of abortion. Drugs (quinin, pituitary, ergot) are valuable in terminating the spontaneous abortion, especially if the ovum is still in the uterus. Sufficient dilatation of the cervix and evacuation with a finger is the method of choice if this fails. The original Winter forceps is the only one permissible, and only for removing those parts which the finger can free but can not remove. A large blunt curet is useful if the finger is unable to separate the whole ovum or if only small remnants are to be removed.

Elective Action of Rays.—Seide confirms the greater injury of ascaris ova under roentgen rays when the ova are in the first stages of their development. Yet he also confirms Ruppert's observation to the contrary when using ultraviolet rays: The riper embryos were more susceptible to these than the early stages. Thus the Bergonié-Tribondeau law applies only to roentgen and radium rays.

Klinische Wochenschrift, Berlin

4: 2137-2184 (Nov. 5) 1925

Pigmentations of Hemoglobin Origin. O. Lubarsch.—p. 2137.
*Death from Electric Current. H. Schridde.—p. 2143.
*Constitution and European Races. K. O. Henckel.—p. 2145.
*Skin Test in Inguinal Lymphogranuloma. W. Frei.—p. 2148.
*Antiserums to Monogenous Antigens. Friedberger and Ikeda.—p. 2149.
*Hemorrhages in Insulin Treated Coma. Ehrmann and Jacoby.—p. 2151.
*Specific Dynamic Action of Proteins. R. Liebeschütz-Plaut.—p. 2153.
*The Blood in Cyanid Poisoning. M. Hasselmann.—p. 2154.
Colon Bacillus Pyelitis. W. Löwenberg.—p. 2155.
"Weak Irradiation." Schwarz.—p. 2156. Reply. Heimann.—p. 2157.
"Emotion and Logic in Homeopathy." Bastanier.—p. 2157. Reply. Heubner.—p. 2158.
*Acetonemia in Pregnancy Toxicosis. Bokelmann and Bock.—p. 2158.
Monosegmental Innervation of Muscles. S. de Boer.—p. 2159.
Rupture of Spleen in Therapeutic Malaria. Trömner and Baltzer.—p. 2159.
Roentgen Treatment in Gynecology and Obstetrics. Schumacher.—p. 2160.
Immunization Against Streptococci and Pneumococci. Killian.—p. 2166.
An Esthesiometer. R. Fleischhauer.—p. 2183.

Death from Electric Current.—Schridde made postmortems on thirty-seven men who had been killed by electric currents of not more than 220 to 250 volts. He found in thirty-six of them typical signs of a "thymic constitution": the lower extremities were long, the neck short, the skin frequently fine and pale and with only little hair, especially in the axillae, little or no beard, and a heterosexual or intersexual type of pubic hair. The thymus gland and spleen were enlarged. The only exception was one elderly man in poor general condition. Burns were not always present. In the positive cases they were on the left hand (shorter route to the heart) in 90 per cent. Therefore the old recommendation to keep one hand (the left) in the pocket while working was sensible. Edema of the lungs was present in twenty-one of his cases. The death in the remaining fifteen might be explained by fibrillation of the ventricle.

Constitution and Racial Type.—Henckel found in Sweden the same frequency of a leptosomatic (asthenic, slender) and muscular (broad) and dysplastic type in schizophrenia, and of the pycnic type in cyclic psychoses as elsewhere in Europe. Therefore the explanation of the constitutional types as racial types is not correct. He found no disturbance of correlation of external characters, such as the color of hair and eyes, in his material.

Skin Test in Inguinal Lymphogranuloma.—Frei obtained a skin reaction with an antigen prepared from the pus from the bubo in nine cases of so-called inguinal lymphogranuloma. The complement fixation tests with the serum from these patients were negative.

Antiserums to Monogenous Antigens.—Friedberger and Ikeda observed the formation of two rings in precipitation tests for serum. The upper consists of fine floccules which turn black under the action of osmic acid. The lower consists of heavy floccules which are not lipoid. They believe that nobody, including themselves, had observed the formation of two rings before. They explain the upper ring as due to heterogenous antibodies. It can be prevented by treat-

ing the serum with any boiled protein. A heterogenous antigen or toxin causes only the formation of one ring, they say.

Hemorrhages in Coma Treated with Insulin.—Ehrmann and Jacoby observed hemorrhages, especially in the brain and lungs, in twelve cases of diabetic coma, treated with large or small doses of insulin. In five of these patients, spasms of the face or extremities were probably due to the hemorrhages. Four of their patients had complained of colic in the mesogastrium.

Specific Dynamic Action of Proteins.—Liebeschütz-Plaut points out that the specific dynamic action of the proteins begins only after their resorption. A deficient function of the stomach delays it. She rates its average at 30 per cent. of the basal metabolism, and less with increased basal metabolism. She is inclined to explain Pollitzer and Stolz' results by their faulty technic.

The Blood in Cyanid Poisoning.—Hasselmann found a moderate polycythemia in people employed in the manufacture or handling of hydrocyanic acid. The number of leukocytes with basophilic granulation was increased in some of them.

Acetonemia in Pregnancy Toxicosis.—Bokelmann and Bock had found an increased amount of acetone in the blood in pregnancy. It was especially high in toxemia.

Medizinische Klinik, Berlin

21: 1673-1712 (Nov. 6) 1925

Surgical Treatment of Peritonitis. H. Wildegans.—p. 1673.
Treatment of Furunculosis. A. Buschke and E. Langer.—p. 1675.
Intestinal Lymphogranulomatosis. R. Pamperl and C. Terplan.—p. 1679.
*Thoracic Zoster and the Stomach. Hess and Faltitschek.—p. 1683.
Injury of Cranial Nerves by Intraspinal Anesthesia. F. Blaschke and G. Herrmann.—p. 1685.
Echolalia or Deafmutism? E. Schlittler.—p. 1686.
*Local Chilling in Disease in Parietal Lobe. E. Wodak.—p. 1688.
Hematology of Scarlet Fever. H. Bix.—p. 1689. C'td.
Serum Sickness. Goldschmidt.—p. 1691.
Hospitalism in Infants. L. Bytsch.—p. 1692. C'td.
Cutaneous Appendices on Neck. W. Smital.—p. 1693.
Peristalsis of the Tubes. F. Kok.—p. 1694.
*Fixation of Bacteriophage on Bacteria. S. Kimura.—p. 1695.
Survey on Gynecology. W. Liepmann and W. Brusten.—p. 1698.

Thoracic Herpes Zoster and the Stomach.—Hess and Faltitschek observed hypermotility and hypersecretion of the stomach in patients with herpes zoster of the thoracic segments—especially of the lower ones. The gastric disturbances disappeared together with the eruption.

Local Chilling in Disease in Parietal Lobe.—Wodak induced a past-pointing reaction by chilling of the skin over the parietal lobe in a patient with an operative defect of the bone in that region.

Fixation of Bacteriophage on Bacteria.—Kimura reviews the experiments on fixation of bacteriophages by living and killed bacteria. The specific antibacteriophage serums prevent their fixation on the germs. The affinity of the serums for the bacteriophage is weaker than the affinity of the bacteriophage for the germs.

Münchener medizinische Wochenschrift, Munich

72: 1907-1950 (Nov. 6) 1925

Functions of the Liver. F. Fischler.—p. 1907. C'td.
*Roentgen Irradiations in Syphilis. F. Wirz.—p. 1910.
*Influencing the Insensible Perspiration. Moog and Eimer.—p. 1912.
Syphilis and Human Milk. G. Schwarz.—p. 1916.
*Treatment of Atrophy of Pigment. Axmann.—p. 1918.
*The Misshapen Foot of Civilization. E. Fischer.—p. 1918.
Mites in Feces. J. Wertheimer.—p. 1920.
"Microtest for Blood Sugar." L. Lorber.—p. 1921.
Psychopathology in Homer. R. Ganter.—p. 1924.
Early Diagnosis of Cancer of Large Intestine. A. Krecke.—p. 1926.
Social Medicine and Racial Hygiene. L. Gelpke.—p. 1927.
Precolumbian Syphilis in the Near East. P. Hildebrand.—p. 1928.

Roentgen Irradiations in Syphilis.—Wirz observed four syphilitic patients who had been subjected to treatment with roentgen rays because of a blunder in diagnosis. One of them was thus mistreated in the primary stage (a virgin with chancre of the tonsil acquired at a kissing game); the three others were in the tertiary stage. The syphilis was grave and relatively refractory to treatment in all of them. The rays had been applied to the cervical lymph nodes, the skin or the lip.

Influencing the Insensible Perspiration.—Moog and Eimer found a decrease of the insensible perspiration after intravenous injections of 10-20 c.c. of a 10 per cent. solution of sodium chlorid; an increase after 10 c.c. of a 10 per cent. solution of calcium chlorid and a delayed decrease after intramuscular injection of 5 c.c. of a 50 per cent. solution of cane sugar.

Treatment of Atrophy of Pigment.—Axmann utilizes Freund's observation on the photosensitizing action of eau de cologne in phototherapy of vitiligo.

The Misshapen Foot in Civilization.—Fischer attributes the frequency of deformities of the foot in the Western nations to six causes: the premature teaching of children to walk, the training to turn out the toes, outward rotation of the foot, the unphysiologic manner of walking, the unnecessary and excessive standing, and the incorrect way in which shoes are made. He discusses the latter nuisance in detail, and describes his device for obtaining the correct shape of the shoe to fit the foot.

Wiener klinische Wochenschrift, Vienna

38: 1201-1228 (Nov. 5) 1925

*Peptone Therapy. H. Pollitzer.—p. 1201.
*Chemotherapy. P. Saxl et al.—p. 1202.
*Function of Suprarenal Cortex. W. Falta.—p. 1203.
*Endocrine Relations Between Mother and Fetus. R. Neurath.—p. 1206.
Traction-Extension Splints. L. Moszkowicz.—p. 1207.
Partial Antigens. F. Mattausch.—p. 1209.
Paralysis of Cranial Nerves. J. Brief.—p. 1212.
*Hypnosis Combined with Narcotics. P. Schilder.—p. 1213.
Pathology and Treatment of Leukorrhea. Novak. Supplement.—pp. 1-12.

Peptone Therapy.—Pollitzer found in intramuscular injections of from 2 to 5 c.c. of a 5 per cent. solution of peptone a good antidote against the diarrhea following injection of novasurol. He had favorable results with it in a case of colitis, and in hemoptysis. The excellent effect in asthma is also confirmed.

Chemotherapy.—Saxl, Donath and Kelen protected rabbits by injections of acriflavin and other substances against a subsequent infection with lethal doses of colon bacilli.

Function of Suprarenal Cortex.—Falta concludes that the cortex of the suprarenals exerts a strong influence on the growth of the body, the sex organs, and especially on the secondary sex characters (virilism in women, hypervirilism in men). The latter occurs even with dystrophy of the gonads.

Endocrine Relations Between Mother and Fetus.—Neurath's patient, a mother of two healthy children, had been subjected to partial thyroidectomy for goiter. Ten months later a child with goiter was born, in an asphyxiated condition, and died. Experiments on rabbits have failed to date, because gestation did not take place in his thyroidectomized animals.

Hypnosis Combined with Narcotics.—Schilder administers to the patient from 0.5 to 1 gm. of barbital two hours before the intended hypnosis, and keeps him from sleeping. Paraldehyd in doses of from 4-10 gm. or amylene hydrate, 4-6 gm., act rapidly, and the hypnosis can be started in a few minutes. Overdoses prevent the rapport by producing real sleep.

Zeitschrift für Kinderheilkunde, Berlin

40: 177-308 (Nov. 13) 1925

*Vitamins and Pasteurization of Milk. W. Blumenberg.—p. 177.
*Caronia's Measles Prevention. E. Nobel and M. Schönberger.—p. 197.
*Diuresis After Concentrated Feedings. Baumecker and Schönthal.—p. 211.
*Familial Polycythemia. M. Kretschmer.—p. 225.
Vegetative System in Infants. Blumenthal and Doxiades.—p. 229.
Action of Muscle Antagonists in Infants. L. Doxiades.—p. 244.
Cow's Milk, Whey and Lactase. H. Davidsohn.—p. 251.
*Whey and Blood Sugar. K. Keilmann.—p. 259.
Resorption of Sugar from Milk. K. Keilmann and F. Rosenbund.—p. 268.
Whey and Evacuation of Stomach. Block and Koenigsberger.—p. 272.
*Whey and Lactosuria. E. Bernhard.—p. 275.
*Whey and Acute Diarrhea. H. Finkelstein.—p. 277.
Growth of Feebleminded Children. A. Rosenblüth.—p. 281.
*Second Infection with Measles. B. de Rudder.—p. 289.
*Feeding Cod Liver Oil to Cows. R. Wagner and H. Wimberger.—p. 295.

Vitamins and Pasteurization of Milk.—Blumenberg found a low vitamin C content in cow's milk. It is further dimin-

ished by pasteurization. Half an hour at 63 C. is worse than one quarter of an hour at 85 C. A rapid heating of pasteurized milk just to the boiling point does not impair it any more.

Caronia's Measles Prevention.—Nobel and Schönberger found that Caronia's vaccine used early may protect against measles. They do not claim that the protection is specific. They observed on the ninth and tenth day after the vaccination of the children symptoms which might perhaps be regarded as rudimentary measles.

Diuresis Test After Concentrated Feedings.—Baumecker and Schönthal made diuresis tests on infants fed with concentrated food. One group retained water after even a short period of the thick feedings, another group after a prolonged period, and a third not at all. This third group gained steadily in weight on this diet; the second only temporarily, while the first group responded by losing in weight immediately.

Familial Polycythemia.—Kretschmer observed polycythemia of the Vaquez type in three children in one family (two sisters and one brother).

Whey and Blood Sugar.—Keilmann found that whey retards the hyperglycemia from milk sugar. Casein does not influence it. The action of whey may be due to an inhibition of resorption from the bowel.

Whey and Lactosuria.—Bernhard found that lactosuria occurs with whey with smaller amounts of lactose than with deproteinized whey or water.

Whey and Acute Diarrhea.—Finkelstein concludes from the series of studies made by himself and his collaborators that whey favors abnormal bacterial processes in the intestine. He believes that the reduction of whey in "albumin milk" is an important therapeutic factor.

Second Infection with Measles.—Rudder reports on a child who had measles twice—the diagnosis being as certain as can be required by extreme skepticism.

Feeding Cod Liver Oil to Cows.—Wagner, Wimberger and their collaborators found no increase in the antirachitic value in milk of cows fed for several months with the addition of from 50 to 300 gm. of cod liver oil. Neither was the vitamin A content increased.

Zentralblatt für innere Medizin, Leipzig

46: 1017-1048 (Oct. 24) 1925

Blocking Conduction from Segments of the Spinal Cord. H. Havlicek. —p. 1018.

46: 1049-1064 (Oct. 31) 1925

*Self-Observations on Cardiac Asthma. H. Goldbladt.—p. 1049.

Self-Observations on Cardiac Asthma.—Goldbladt observed on himself and other patients with slight cardiac insufficiency a coincidence of attacks of cardiac dyspnea with swelling of the eyelids. No nephritis was present. Yawning occurred sometimes in the attacks.

Časopis lékařů českých, Prague

64: 1573-1608 (Oct 31) 1925

*Spasms of Constrictors of Larynx. J. Cisler.—p. 1573.
*War Experiences on Getting Chilled. R. Pelikán.—p. 1576.
*Sequels of Cervical Sympathectomy. A. Jirásek.—p. 1580.
Radiotherapy of Cancer of the Esophagus. F. V. Novák.—p. 1584.
*Agglutination and the Bacteriophage in Typhoid. J. Stolz.—p. 1588.
Cleaning of Vaccine Virus. K. Urbánek.—p. 1591.

Spasms of Constrictors of Larynx.—Cisler observed in dogs poisoned with atropin a spasm of the constrictors of the larynx, with the exception of the arytenoid muscles. The only corresponding case in man had been observed by Wiškowský in a neurotic patient.

War Experiences on Getting Chilled.—Pelikán describes his experiences in Russia. In spite of extremely cold weather and sudden changes of temperature (feet near the hot stove and head at the periphery of the car with zero temperatures), there were no diseases attributed to colds. This was observed even on a transport carrying 1,000 insufficiently equipped soldiers for a distance of 4,000 kilometers. Later on, with a sudden change to a tropical climate on the boat, the soldiers exposed themselves freely to drafts. No diseases occurred.

Sequels of Cervical Sympathectomy.—Jirásek observed a hemorrhagic pleurisy, atony of the esophagus and trigeminal neuralgia after extirpation of the cervical sympathetic in a patient with angina pectoris. The pleura had probably been directly injured during the exeresis of the nerve. Irritation of the sympathetic explains the other symptoms.

Agglutination and the Bacteriophage in Typhoid.—Stolz found that the presence of the bacteriophage in the blood does not interfere with the agglutination occurring within two hours. If the flakes become dissolved within forty-eight hours, the bacteriophage is present, and the prognosis is good.

Hospitalstidende, Copenhagen

68: 841-864 (Sept. 10) 1925

*Kidney Tests with Prostatic Obstruction. V. Eskelund.—Begun p. 827.
*Collodion Membranes. Lundsgaard and Holbøll.—p. 849. C'cn, p. 865.

Kidney Function Tests with Hypertrophied Prostate.—Eskelund investigated the influence on the composition of urine and on the diuresis of effectual drainage (retention catheter) in seven cases of prostatic obstruction. In one case the Ambard coefficient and the urea content of the blood showed great improvement, but the excreted thiosulphate dropped from 16.3 to 9 per cent. in a week. Notwithstanding these conflicting findings, the enlarged prostate was removed. The man died from uremia the eleventh day, and the right kidney was found almost totally destroyed with a carcinoma. The urine of only one of the eight patients was still sterile after six days of catheterization; two had been infected beforehand. If drainage is free, the infection is restricted to the bladder, but it extends to the pelvis if the catheter gets obstructed. The thiosulphate test seems especially instructive in estimation of kidney functioning in acute retention, in which the urea content of the blood is more the expression of a temporary suspension of the catabolyzing function rather than of the actual functional capacity of the kidneys.

Standardization of Collodion Membranes.—The membranes were placed in solutions of alcohol of different concentrations, to produce different grades of permeability. The diffusion coefficient drops as the concentration of the alcohol increases. By the simple technic described, collodion membranes can thus be standardized.

68: 865-888 (Sept. 17) 1925

*The Sedimentation Test. I. Freuchen.—p. 871.

The Sedimentation Test.—Within certain limits the diameter of the tube is immaterial for the outcome of the sedimentation test. The reading is most instructive at the half hour and the hour. Freuchen found that ten drops of the 3.5 per cent. sodium citrate solution gave the best results using a glass of 13 mm. diameter, of a capacity of 7.5 c.c. The highest figure he obtained was in a man with pernicious anemia; the figure was 39.5 at the half hour and 42 at the full hour. In blood from twenty horses, tested minute by minute, the greatest differences between the sick and the well were observed at the eleventh minute, sedimentation occurring much more rapidly in horse blood than in human blood.

68: 889-912 (Sept. 24) 1925

*Picric Acid Dermatitis. J. Foged.—p. 889.
*Conservative Versus Operative Treatment of Salpingitis. Andersen.—p. 901.

Picric Acid as a Disinfectant for the Skin.—Foged warns that a universal and protracted dermatitis developed in four of the fifty-two cases in which he used a 5 per cent. alcoholic solution of picric acid for local disinfection of the skin, mostly before major operations. In all the other cases the effect was excellent, confirming the efficacy of picric acid for this purpose.

Salpingitis.—Andersen states that operative treatment of nontuberculous salpingitis gave by far the best results in 500 cases treated by various methods in Rovsing's private clinic or public hospital service. The ultimate outcome has been better in the operative grave and medium cases than in the conservatively treated mild cases.